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<120> POLYNUCLEOTIDES ENCODING NOVEL HUMAN PHOSPHATASES

<130> D0072.NP

<150> US 60/256,868
<151> 2000-12-20

<150> US 60/280,186
<151> 2001-03-30

<150> US 60/287,735
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<151> 2001-06-25

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catgcagggc ttggtcgaac aggt   144

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Leu Val Tyr Phe Tyr Asn Phe Gly Trp Lys Asp Tyr Gly Val Ala Ser
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Leu Thr Thr Ile Leu Asp Met Val Lys Val Met Thr Phe Ala Leu Gln
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Glu Gly Lys Val Ala Ile His Cys His Ala Gly Leu Gly Arg Thr Gly
        35   40   45

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cagcgacagc tgccccggcc tcacctgca ccgcctgcgc atccccgact tctgcccgcc   240

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ggctgtggga gtgcactgtg ctctgggctt tggccgcact ggcaccatgc tggcctgtta   360

cctggtgaag gagcggggct tggctgcagg agatgccatt gctgaaatcc gacgactacg   420

acccggcccc atcgagacct atgagcagga gaaagcagtc ttccagttct accagcgaac   480

gaaataaggg gccttagtac ccttctacca ggccctcact ccccttcccc atgttgtcga   540

tggggccaga gatgaaggga agtggactaa agtattaaac cctctagctc ccattggctg   600

aagacactga agtagcccac ccctgcaggc aggtcctgat tgaaggggag gcttgtactg   660

ctttgttgaa taaatgagtt ttacgaacca gggaaaaaaa aaaaaaaaaa aaagaaaaaa   720

aaaaaaaaaa aaaaaaaaaa aaagaa   746

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<220>
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<222>   (160)..(160)
<223>   wherein 'Xaa' is any amino acid.

<220>
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<222>   (200)..(200)

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<223> wherein 'Xaa' is any amino acid.

<220>
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<223> wherein 'Xaa' is any amino acid.

<220>
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<223> wherein 'Xaa' is any amino acid.

<220>
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<223> wherein 'Xaa' is any amino acid.

<400> 6

Trp Pro Gly Arg Arg Arg Gly Gln Val Gly Ala Met Gly Val Gln Pro
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Pro Asn Phe Ser Trp Val Leu Pro Gly Arg Leu Ala Gly Leu Ala Leu
            20   25   30

Pro Arg Leu Pro Ala His Tyr Gln Phe Leu Leu Asp Leu Gly Val Arg
        35   40   45

His Leu Val Ser Leu Thr Glu Arg Gly Pro Pro His Ser Asp Ser Cys
    50   55   60

Pro Gly Leu Thr Leu His Arg Leu Arg Ile Pro Asp Phe Cys Pro Pro
65   70   75   80

Ala Pro Asp Gln Ile Asp Arg Phe Val Gln Ile Val Asp Glu Ala Asn
                85   90   95

Ala Arg Gly Glu Ala Val Gly Val His Cys Ala Leu Gly Phe Gly Arg
            100   105   110

Thr Gly Thr Met Leu Ala Cys Tyr Leu Val Lys Glu Arg Gly Leu Ala
        115   120   125

Ala Gly Asp Ala Ile Ala Glu Ile Arg Arg Leu Arg Pro Gly Pro Ile
    130   135   140

Glu Thr Tyr Glu Gln Glu Lys Ala Val Phe Gln Phe Tyr Gln Arg Thr
145   150   155   160

Lys Xaa Gly Ala Leu Val Pro Phe Tyr Gln Ala Leu Thr Pro Leu Pro
            165   170   175

His Val Val Asp Gly Ala Arg Asp Glu Gly Lys Trp Thr Lys Val Leu
        180   185   190

Asn Pro Leu Ala Pro Ile Gly Xaa Arg His Xaa Ser Ser Pro Pro Leu
        195   200   205

3

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Gln Ala Gly Pro Asp Xaa Arg Gly Gly Leu Tyr Cys Phe Val Glu Xaa
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Met Ser Phe Thr Asn Gln Gly Lys Lys Lys Lys Lys Lys Arg Lys Lys
225                 230                 235                 240

Lys Lys Lys Lys Lys Lys Lys Arg
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<210>  7
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<212>  DNA
<213>  HOMO SAPIENS

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ggagttacca ccatagtaag agtatgaaaa gcaacttaca acattgctct tttagagaag     180

ggaagcatcc aggttccgga ctggcctttt gatgatggta cagcaccatc cagccagata     240

attgataact ggttaaaact tatgaaaaat aaatttcatg aagatcctgg ttgttgtatt     300

gcaattcact gtgttgtagg ttttgggtga gctccagttg ctagttgccc tagctttaat     360

tgaaggtgga atgaaatatg aaaatgtagt acagttcatc agataaaagt gacatggaac     420

ttttaacagc aaacaacttt tgtatttgga gaaatattgt cttaaaatat gcttgcacct     480

cagaaatccc agaaataact gtttccttca g                                    511


<210>  8
<211>  170
<212>  PRT
<213>  HOMO SAPIENS

<220>
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<222>  (49)..(49)
<223>  wherein 'Xaa' is any amino acid.


<220>
<221>  Variant
<222>  (110)..(110)
<223>  wherein 'Xaa' is any amino acid.


<220>
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<222>  (121)..(121)
<223>  wherein 'Xaa' is any amino acid.


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<222>  (127)..(127)
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<223> wherein 'Xaa' is any amino acid.

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<222> (154)..(154)
<223> wherein 'Xaa' is any amino acid.

<400> 8

Met Ala Arg Met Asn Leu Pro Ala Ser Val Asp Ile Ala Tyr Lys Asn
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Val Arg Phe Leu Ile Thr His Asn Pro Thr Asn Thr Tyr Phe Asn Arg
            20   25   30

Phe Leu Gln Glu Leu Lys Gln Asp Gly Val Thr Thr Ile Val Arg Val
        35   40   45

Xaa Lys Ala Thr Tyr Asn Ile Ala Leu Leu Glu Lys Gly Ser Ile Gln
    50   55   60

Val Pro Asp Trp Pro Phe Asp Asp Gly Thr Ala Pro Ser Ser Gln Ile
65   70   75   80

Ile Asp Asn Trp Leu Lys Leu Met Lys Asn Lys Phe His Glu Asp Pro
            85   90   95

Gly Cys Cys Ile Ala Ile His Cys Val Val Gly Phe Gly Xaa Ala Pro
            100   105   110

Val Ala Ser Cys Pro Ser Phe Asn Xaa Arg Trp Asn Glu Ile Xaa Lys
            115   120   125

Cys Ser Thr Val His Gln Ile Leu Lys Val Thr Trp Asn Phe Xaa Gln Gln
    130   135   140

Thr Thr Phe Val Phe Gly Glu Ile Leu Ser Xaa Asn Met Leu Ala Pro
145   150   155   160

Gln Lys Ser Gln Lys Xaa Leu Phe Pro Ser
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<210>   9
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<212>   DNA
<213>   HOMO SAPIENS

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gaggagctga aggaggtgag caaggacgcag cccagactgg aggctgagta ccctgccaac   120

accaccaaga actgttaacc acatgtgcta ccctatgacc actccagggt caggctgacc   180

cagctggagg gagagcctca ttctgactac atcaatgcca acttggtccc aggctacacc   240

cgcccacagg agttcattgc ctctcagggg cctctcaaga aaacactgga gaacttctgg   300

cggctggtgc gggagcagca ggtccgcatc atcatcatgc cgaccatcag catggagaac   360

5

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gggagggtgc tgtgtgagca ttactggctg accgactcta ccccggacac ccatggtcac    420

atcaccatcc acctcctagc tgaggagcct gaggatgagt ggaccaagcg ggaattccag    480

ctgcagcacg ttgtccagca acatcaacgg agggtggagc aactgcagtt caccacctga    540

tccgaccaca gcatccttga ggctcccagc tccctgctcg cctttatgga gctggtacag    600

tagcaggcaa gggccaccca gggcgtggga cccatcctgg tgcactgcag gggctgtccc    660

tgcggtgtgg gcatgggccg gacaggcacc ttcgtggccc tgtcgaggct gctgcagcag    720

ctggaggagg agcagatggt agacgtgttc catgctgtgt atgcactccg gatgcaccag    780

cccctcatga tccagaccct gagccagtac gtcttcctgc acagctgcct actgaacaag    840

attctggaag gacccttcaa catctctgag tcttggccca tctctgtgac ggacctcccg    900

caggcgtgtg ccaagagggc agccagtgcc aatgctggct tcttgaagga gtacgaggcc    960

atcaaggacg aggctggctt ttccgccacc ccgcctggct atgagcagga cagccccgtc   1020

tcctatgacc gttctcaggg gcagtttttct ccggtggagg agagcccccc tgacgacatg   1080

cctctctgga agccaatgat ctgtgctctg cagggtgggc cctctggccg tgatcatacg   1140

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catgtgcttg tctctctttg cccacccaat gtcatggaga aggaattctg gccaacggag   1260

atgcagcccg tagtcacaga catggtgacg gtgcactggg tggctgagag cagcacagca   1320

ggctggttct gtaccctcct cagggtcaca catggggaga gcaggaagga aagggaggtg   1380

cagagactgc aatttccata cctggagcct gggcatgagc tgcccgccac caccctgctg   1440

cccttcctgg ctgctgtggg ccagtgctgc tctcggggca acaacaagaa gccgggcaca   1500

ctgctcagcc actccaacaa gggtgcaacc cagctgggca ccttcctggc catggagcag   1560

ctgctcagcc aggcagggtc tgagtgcacc gtggatatct ttaacgtggc cctgcagcag   1620

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ctgaacagcg cgctggcaga cgggctgccc                                    1710
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<212>   PRT
<213>   HOMO SAPIENS

<220>
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<222>   (46)..(46)
<223>   wherein 'Xaa' is any amino acid.

<220>
<221>   Variant
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<222>  (180)..(180)
<223>  wherein 'Xaa' is any amino acid.


<220>
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<222>  (201)..(201)
<223>  wherein 'Xaa' is any amino acid.


<400>  10
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            20                  25                  30

Leu Glu Ala Glu Tyr Pro Ala Asn Thr Thr Lys Asn Cys Xaa Pro His
        35                  40                  45

Val Leu Pro Tyr Asp His Ser Arg Val Arg Leu Thr Gln Leu Glu Gly
    50                  55                  60

Glu Pro His Ser Asp Tyr Ile Asn Ala Asn Leu Val Pro Gly Tyr Thr
65                  70                  75                  80

Arg Pro Gln Glu Phe Ile Ala Ser Gln Gly Pro Leu Lys Lys Thr Leu
            85                  90                  95

Glu Asn Phe Trp Arg Leu Val Arg Glu Gln Gln Val Arg Ile Ile Ile
            100                 105                 110

Met Pro Thr Ile Ser Met Glu Asn Gly Arg Val Leu Cys Glu His Tyr
        115                 120                 125

Trp Leu Thr Asp Ser Thr Pro Asp Thr His Gly His Ile Thr Ile His
    130                 135                 140

Leu Leu Ala Glu Glu Pro Glu Asp Glu Trp Thr Lys Arg Glu Phe Gln
145                 150                 155                 160

Leu Gln His Val Val Gln Gln His Gln Arg Arg Val Glu Gln Leu Gln
                165                 170                 175

Phe Thr Thr Xaa Ser Asp His Ser Ile Leu Glu Ala Pro Ser Ser Leu
            180                 185                 190

Leu Ala Phe Met Glu Leu Val Gln Xaa Gln Ala Arg Ala Thr Gln Gly
    195                 200                 205

Val Gly Pro Ile Leu Val His Cys Arg Gly Cys Pro Cys Gly Val Gly
    210                 215                 220

Met Gly Arg Thr Gly Thr Phe Val Ala Leu Ser Arg Leu Leu Gln Gln
225                 230                 235                 240

Leu Glu Glu Glu Gln Met Val Asp Val Phe His Ala Val Tyr Ala Leu
                245                 250                 255

Arg Met His Gln Pro Leu Met Ile Gln Thr Leu Ser Gln Tyr Val Phe
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Leu His Ser Cys Leu Leu Asn Lys Ile Leu Glu Gly Pro Phe Asn Ile
        275   280   285

Ser Glu Ser Trp Pro Ile Ser Val Thr Asp Leu Pro Gln Ala Cys Ala
    290   295   300

Lys Arg Ala Ala Ser Ala Asn Ala Gly Phe Leu Lys Glu Tyr Glu Ala
305   310   315   320

Ile Lys Asp Glu Ala Gly Phe Ser Ala Pro Pro Gly Tyr Glu Gln
            325   330   335

Asp Ser Pro Val Ser Tyr Asp Arg Ser Gln Gly Gln Phe Ser Pro Val
            340   345   350

Glu Glu Ser Pro Pro Asp Asp Met Pro Leu Trp Lys Pro Met Ile Cys
        355   360   365

Ala Leu Gln Gly Gly Pro Ser Gly Arg Asp His Thr Val Leu Thr Gly
        370   375   380

Pro Ala Gly Pro Lys Glu Leu Trp Glu Leu Val Trp Gln His Arg Ala
385   390   395   400

His Val Leu Val Ser Leu Cys Pro Pro Asn Val Met Glu Lys Glu Phe
            405   410   415

Trp Pro Thr Glu Met Gln Pro Val Val Thr Asp Met Val Thr Val His
            420   425   430

Trp Val Ala Glu Ser Ser Thr Ala Gly Trp Phe Cys Thr Leu Leu Arg
        435   440   445

Val Thr His Gly Glu Ser Arg Lys Glu Arg Glu Val Gln Arg Leu Gln
    450   455   460

Phe Pro Tyr Leu Glu Pro Gly His Glu Leu Pro Ala Thr Thr Leu Leu
465   470   475   480

Pro Phe Leu Ala Ala Val Gly Gln Cys Cys Ser Arg Gly Asn Asn Lys
            485   490   495

Lys Pro Gly Thr Leu Leu Ser His Ser Asn Lys Gly Ala Thr Gln Leu
        500   505   510

Gly Thr Phe Leu Ala Met Glu Gln Leu Leu Gln Gln Ala Gly Ser Glu
    515   520   525

Cys Thr Val Asp Ile Phe Asn Val Ala Leu Gln Gln Ser Gln Ala Cys
    530   535   540

Gly Leu Met Thr Pro Thr Leu Lys Gln Tyr Val Tyr Leu Tyr Asn Cys
545   550   555   560

Leu Asn Ser Ala Leu Ala Asp Gly Leu Pro
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<211> 63

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gag   63

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<211> 91
<212> DNA
<213> HOMO SAPIENS

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accaagaact gttaaccaca tgtgctaccc t   91

<210> 13
<211> 77
<212> DNA
<213> HOMO SAPIENS

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atgccaactt ggtccca   77

<210> 14
<211> 135
<212> DNA
<213> HOMO SAPIENS

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aacttctggc ggctggtgcg ggagcagcag gtccgcatca tcatcatgcc gaccatcagc   120

atggagaacg ggagg   135

<210> 15
<211> 123
<212> DNA
<213> HOMO SAPIENS

<400> 15
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atccacctcc tagctgagga gcctgaggat gagtggacca agcgggaatt ccagctgcag   120

cac   123

<210> 16
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<212> DNA
<213> HOMO SAPIENS

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agggccaccc agggcgtggg acccatcctg gtgcactgca g   161

<210> 17
<211> 151
<212> DNA
<213> HOMO SAPIENS

<400> 17
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gatgcaccag cccctcatga tccagaccct g   151

<210> 18
<211> 68
<212> DNA
<213> HOMO SAPIENS

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atctctga   68

<210> 19
<211> 88
<212> DNA
<213> HOMO SAPIENS

<400> 19
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caatgctggc ttcttgaagg agtacgag   88

<210> 20
<211> 67
<212> DNA
<213> HOMO SAPIENS

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gtctcct   67

<210> 21
<211> 58
<212> DNA
<213> HOMO SAPIENS

<400> 21

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<210>  22
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<212>  DNA
<213>  HOMO SAPIENS

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gctgactggc cccgcagggc caaaggagct ctgggagctg gtgtggcagc acagggctca         120

tgtgcttgtc tctctttgcc cacccaatgt catggagaag                              160


<210>  23
<211>  111
<212>  DNA
<213>  HOMO SAPIENS

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gctgagagca gcacagcagg ctggttctgt accctcctca gggtcacaca t                  111


<210>  24
<211>  164
<212>  DNA
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catgagctgc ccgccaccac cctgctgccc ttcctggctg ctgtgggcca gtgctgctct         120

cggggcaaca acaagaagcc gggcacactg ctcagccact ccaa                         164


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<212>  DNA
<213>  HOMO SAPIENS

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gtctgagtgc accgtggata tctttaacgt ggccctgcag cagtctcagg cctgtggcct         120

tatgacccca acactg                                                        136


<210>  26
<211>  57
<212>  DNA
<213>  HOMO SAPIENS

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11

<210> 27
<211> 1188
<212> PRT
<213> HOMO SAPIENS

<400> 27

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Leu Leu Trp Leu Phe Val Leu Phe Lys Asn Ala Thr Ala Phe His Val
            20   25   30

Thr Val Gln Asp Asp Asn Asn Ile Val Val Ser Leu Glu Ala Ser Asp
        35   40   45

Val Ile Ser Pro Ala Ser Val Tyr Val Val Lys Ile Thr Gly Glu Ser
    50   55   60

Lys Asn Tyr Phe Phe Glu Phe Glu Glu Phe Asn Ser Thr Leu Pro Pro
65   70   75   80

Pro Val Ile Phe Lys Ala Ser Tyr His Gly Leu Tyr Tyr Ile Ile Thr
                85   90   95

Leu Val Val Val Asn Gly Asn Val Val Thr Lys Pro Ser Arg Ser Ile
            100   105   110

Thr Val Leu Thr Lys Pro Leu Pro Val Thr Ser Val Ser Ile Tyr Asp
        115   120   125

Tyr Lys Pro Ser Pro Glu Thr Gly Val Leu Phe Glu Ile His Tyr Pro
    130   135   140

Glu Lys Tyr Asn Val Phe Thr Arg Val Asn Ile Ser Tyr Trp Glu Gly
145   150   155   160

Lys Asp Phe Arg Thr Met Leu Tyr Lys Asp Phe Phe Lys Gly Lys Thr
                165   170   175

Val Phe Asn His Trp Leu Pro Gly Met Cys Tyr Ser Asn Ile Thr Phe
            180   185   190

Gln Leu Val Ser Glu Ala Thr Phe Asn Lys Ser Thr Leu Val Glu Tyr
        195   200   205

Ser Gly Val Ser His Glu Pro Lys Gln His Arg Thr Ala Pro Tyr Pro
    210   215   220

Pro Gln Asn Ile Ser Val Arg Ile Val Asn Leu Asn Lys Asn Asn Trp
225   230   235   240

Glu Glu Gln Ser Gly Asn Phe Pro Glu Glu Ser Phe Met Arg Ser Gln
                245   250   255

Asp Thr Ile Gly Lys Glu Lys Leu Phe His Phe Thr Glu Glu Thr Pro
            260   265   270

Glu Ile Pro Ser Gly Asn Ile Ser Ser Gly Trp Pro Asp Phe Asn Ser
        275   280   285

12

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Ser Asp Tyr Glu Thr Thr Ser Gln Pro Tyr Trp Trp Asp Ser Ala Ser
    290                 295             300

Ala Ala Pro Glu Ser Glu Asp Glu Phe Val Ser Val Leu Pro Met Glu
305             310             315                 320

Tyr Glu Asn Asn Ser Thr Leu Ser Glu Thr Glu Lys Ser Thr Ser Gly
                325             330                 335

Ser Phe Ser Phe Phe Pro Val Gln Met Ile Leu Thr Trp Leu Pro Pro
            340             345             350

Lys Pro Pro Thr Ala Phe Asp Gly Phe His Ile His Glu Arg Glu
        355             360             365

Glu Asn Phe Thr Glu Tyr Leu Met Val Asp Glu Glu Ala His Glu Phe
    370             375             380

Val Ala Glu Leu Lys Glu Pro Gly Lys Tyr Lys Leu Ser Val Thr Thr
385             390             395                 400

Phe Ser Ser Ser Gly Ser Cys Glu Thr Arg Lys Ser Gln Ser Ala Lys
            405             410                 415

Ser Leu Ser Phe Tyr Ile Ser Pro Ser Gly Glu Trp Ile Glu Glu Leu
            420             425             430

Thr Glu Lys Pro Gln His Val Ser Val His Val Leu Ser Ser Thr Thr
        435             440                 445

Ala Leu Met Ser Trp Thr Ser Ser Gln Glu Asn Tyr Asn Ser Thr Ile
    450             455             460

Val Ser Val Val Ser Leu Thr Cys Gln Lys Gln Lys Glu Ser Gln Arg
465             470             475                 480

Leu Glu Lys Gln Tyr Cys Thr Gln Val Asn Ser Ser Lys Pro Ile Ile
            485             490                 495

Glu Asn Leu Val Pro Gly Ala Gln Tyr Gln Val Val Ile Tyr Leu Arg
            500             505             510

Lys Gly Pro Leu Ile Gly Pro Pro Ser Asp Pro Val Thr Phe Ala Ile
        515             520             525

Val Pro Thr Gly Ile Lys Asp Leu Met Leu Tyr Pro Leu Gly Pro Thr
    530             535             540

Ala Val Val Leu Ser Trp Thr Arg Pro Tyr Leu Gly Val Phe Arg Lys
545             550             555                 560

Tyr Val Val Glu Met Phe Tyr Phe Asn Pro Ala Thr Met Thr Ser Glu
            565             570             575

Trp Thr Thr Tyr Tyr Glu Ile Ala Ala Thr Val Ser Leu Thr Ala Ser
        580             585             590             .

Val Arg Ile Ala Asn Leu Leu Pro Ala Trp Tyr Tyr Asn Phe Arg Val
        595             600             605
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13

Thr Met Val Thr Trp Gly Asp Pro Glu Leu Ser Cys Cys Asp Ser Ser
    610   615   620

Thr Ile Ser Phe Ile Thr Ala Pro Val Ala Pro Glu Ile Thr Ser Val
625   630   635   640

Glu Tyr Phe Asn Ser Leu Leu Tyr Ile Ser Trp Thr Tyr Gly Asp Asp
                645   650   655

Thr Thr Asp Leu Ser His Ser Arg Met Leu His Trp Met Val Val Ala
            660   665   670

Glu Gly Lys Lys Lys Ile Lys Lys Ser Val Thr Arg Asn Val Met Thr
        675   680   685

Ala Ile Leu Ser Leu Pro Pro Gly Asp Ile Tyr Asn Leu Ser Val Thr
    690   695   700

Ala Cys Thr Glu Arg Gly Ser Asn Thr Ser Met Leu Arg Leu Val Lys
705   710   715   720

Leu Glu Pro Ala Pro Pro Lys Ser Leu Phe Ala Val Asn Lys Thr Gln
            725   730   735

Thr Ser Val Thr Leu Leu Trp Val Glu Gly Val Ala Asp Phe Phe
        740   745   750

Glu Val Phe Cys Gln Gln Val Gly Ser Ser Gln Lys Thr Lys Leu Gln
        755   760   765

Glu Pro Val Ala Val Ser Ser His Val Val Thr Ile Ser Ser Leu Leu
770   775   780

Pro Ala Thr Ala Tyr Asn Cys Ser Val Thr Ser Phe Ser His Asp Ser
785   790   795   800

Pro Ser Val Pro Thr Phe Ile Ala Val Ser Thr Met Val Thr Glu Met
            805   810   815

Asn Pro Asn Val Val Val Ile Ser Val Leu Ala Ile Leu Ser Thr Leu
        820   825   830

Leu Ile Gly Leu Leu Leu Val Thr Leu Ile Ile Leu Arg Lys Lys His
    835   840   845

Leu Gln Met Ala Arg Glu Cys Gly Ala Gly Thr Phe Val Asn Phe Ala
    850   855   860

Ser Leu Glu Arg Asp Gly Lys Leu Pro Tyr Asn Trp Ser Lys Asn Gly
865   870   875   880

Leu Lys Lys Arg Lys Leu Thr Asn Pro Val Gln Leu Asp Asp Phe Asp
            885   890   895

Ala Tyr Ile Lys Asp Met Ala Lys Asp Ser Asp Tyr Lys Phe Ser Leu
        900   905   910

Gln Phe Glu Glu Leu Lys Leu Ile Gly Leu Asp Ile Pro His Phe Ala
    915   920   925

Ala Asp Leu Pro Leu Asn Arg Cys Lys Asn Arg Tyr Thr Asn Ile Leu

```
Pro Tyr Asp Phe Ser Arg Val Arg Leu Val Ser Met Asn Glu Glu Glu
945                     950                 955                 960

Gly Ala Asp Tyr Ile Asn Ala Asn Tyr Ile Pro Gly Tyr Asn Ser Pro
                965                 970                 975

Gln Glu Tyr Ile Ala Thr Gln Gly Pro Leu Pro Glu Thr Arg Asn Asp
            980                 985                 990

Phe Trp Lys Met Val Leu Gln Gln  Lys Ser Gln Ile Ile  Val Met Leu
        995                 1000                 1005

Thr Gln  Cys Asn Glu Lys Arg  Arg Val Lys Cys Asp  His Tyr Trp
        1010                 1015                 1020

Pro Phe  Thr Glu Glu Pro Ile  Ala Tyr Gly Asp Ile  Thr Val Glu
        1025            .        1030                 1035

Met Ile  Ser Glu Glu Glu Gln  Asp Asp Trp Ala Cys  Arg His Phe
        1040                 1045                 1050

Arg Ile  Asn Tyr Ala Asp Glu  Met Gln Asp Val Met  His Phe Asn
        1055                 1060                 1065

Tyr Thr  Ala Trp Pro Asp His  Gly Val Pro Thr Ala  Asn Ala Ala
        1070                 1075                 1080

Glu Ser  Ile Leu Gln Phe Val  His Met Val Arg Gln  Gln Ala Thr
        1085                 1090                 1095

Lys Ser  Lys Gly Pro Met Ile  Ile His Cys Ser Ala  Gly Val Gly
        1100                 1105                 1110

Arg Thr  Gly Thr Phe Ile Ala  Leu Asp Arg Leu Leu  Gln His Ile
        1115                 1120                 1125

Arg Asp  His Glu Phe Val Asp  Ile Leu Gly Leu Val  Ser Glu Met
        1130                 1135                 1140

Arg Ser  Tyr Arg Met Ser Met  Val Gln Thr Glu Glu  Gln Tyr Ile
        1145                 1150                 1155

Phe Ile  His Gln Cys Val Gln  Leu Met Trp Met Lys  Lys Lys Gln
        1160                 1165                 1170

Gln Phe  Cys Ile Ser Asp Val  Ile Tyr Glu Asn Val  Ser Lys Ser
        1175                 1180                 1185
```

<210> 28
<211> 405
<212> PRT
<213> Mus musculus

<400> 28

```
Met Val Thr Glu Val Asn Pro Asn Val Val Val Ile Ser Val Leu Ala
1               5                   10                  15

Ile Leu Ser Thr Leu Leu Ile Gly Leu Leu Leu Val Thr Leu Val Ile
```

Leu Arg Lys Lys His Leu Gln Met Ala Arg Glu Cys Gly Ala Gly Thr
        35   40   45

Phe Val Asn Phe Ala Ser Leu Glu Arg Glu Gly Lys Leu Pro Tyr Ser
    50   55   60

Trp Arg Arg Ser Val Phe Ala Leu Leu Thr Leu Leu Pro Ser Cys Leu
65   70   75   80

Trp Thr Asp Tyr Leu Leu Ala Phe Tyr Ile Asn Pro Trp Ser Lys Asn
                85   90   95

Gly Leu Lys Lys Arg Lys Leu Thr Asn Pro Val Gln Leu Asp Asp Phe
            100   105   110

Asp Ser Tyr Ile Lys Asp Met Ala Lys Asp Ser Asp Tyr Lys Phe Ser
        115   120   125

Leu Gln Phe Glu Glu Leu Lys Leu Ile Gly Leu Asp Ile Pro His Phe
    130   135   140

Ala Ala Asp Leu Pro Leu Asn Arg Cys Lys Asn Arg Tyr Thr Asn Ile
145   150   155   160

Leu Pro Tyr Asp Phe Ser Arg Val Arg Leu Val Ser Met Asn Glu Glu
                165   170   175

Glu Gly Ala Asp Tyr Ile Asn Ala Asn Tyr Ile Pro Gly Tyr Asn Ser
            180   185   190

Pro Gln Glu Tyr Ile Ala Thr Gln Gly Pro Leu Pro Glu Thr Arg Asn
        195   200   205

Asp Phe Trp Lys Met Val Leu Gln Gln Lys Ser His Ile Ile Val Met
    210   215   220

Leu Thr Gln Cys Asn Glu Lys Arg Arg Val Lys Cys Asp His Tyr Trp
225   230   235   240

Pro Phe Thr Glu Glu Pro Ile Ala Tyr Gly Asp Ile Thr Val Glu Met
                245   250   255

Val Ser Glu Glu Glu Glu Glu Asp Trp Ala Ser Arg His Phe Arg Ile
            260   265   270

Asn Tyr Ala Asp Glu Ala Gln Asp Val Met His Phe Asn Tyr Thr Gly
        275   280   285

Trp Pro Asp His Gly Val Pro Pro Ala Asn Ala Ala Glu Ser Ile Leu
    290   295   300

Gln Phe Val Phe Thr Val Arg Gln Gln Ala Ala Lys Ser Lys Gly Pro
305   310   315   320

Met Ile Ile His Cys Ser Ala Gly Val Gly Arg Thr Gly Thr Phe Ile
                325   330   335

Ala Leu Asp Arg Leu Leu Gln His Ile Arg Asp His Glu Phe Val Asp
            340   345   350

```
Ile Leu Gly Leu Val Ser Glu Met Arg Ser Tyr Arg Met Ser Met Val
        355                 360                 365

Gln Thr Glu Glu Gln Tyr Ile Phe Ile His Gln Cys Val Gln Leu Met
    370                 375                 380

Trp Leu Arg Lys Lys Gln Gln Phe Cys Ile Ser Asp Val Ile Tyr Glu
385                 390                 395                 400

Asn Val Ser Lys Ser
                405


<210>  29
<211>  303
<212>  PRT
<213>  Schizosaccharomyces pombe


<400>  29

Met Ser Phe Lys Glu Val Ser Thr Glu Asn Gly Val Leu Thr Pro Leu
1               5                   10                  15

Ile Thr Ile Lys Glu Lys Ala Tyr Met Ile Ile Glu Gly Leu Asn Glu
        20                  25                  30

Glu Glu Ile Glu Leu Leu Asn Thr Arg Leu Pro Lys Leu Ser Lys Lys
        35                  40                  45

Ala Leu Ala Arg Asn Arg Tyr Ser Asn Ile Val Pro Tyr Glu Asn Thr
    50                  55                  60

Arg Val Arg Leu Asp Pro Met Trp Lys Glu Ala Cys Asp Tyr Ile Asn
65                  70                  75                  80

Ala Ser Ile Val Lys Ile Pro Ser Gly Lys Thr Phe Ile Ala Thr Gln
                85                  90                  95

Gly Pro Thr Ser Asn Ser Ile Asp Val Phe Trp Lys Met Val Trp Gln
            100                 105                 110

Ser Val Pro Lys Ser Gly Ile Ile Val Met Leu Thr Lys Leu Arg Glu
        115                 120                 125

Arg His Arg Leu Lys Cys Asp Ile Tyr Trp Pro Val Glu Leu Phe Glu
    130                 135                 140

Thr Leu Asn Ile Gly Asp Leu Ser Val Ile Leu Val Lys Val Tyr Thr
145                 150                 155                 160

Leu Thr Ser Leu Asn Glu Val Gln Val Arg Glu Phe Glu Leu Asn Lys
                165                 170                 175

Asp Gly Val Lys Lys Ile Leu His Phe Tyr Tyr Asn Gly Trp Pro
            180                 185                 190

Asp Phe Gly Ala Pro His Thr Phe Ser Leu Leu Ser Leu Thr Arg Tyr
        195                 200                 205

Ile Lys Ser Leu Ser Tyr Ser Pro Asp Phe Glu Thr Ala Pro Ile Ile
    210                 215                 220
```

```
Val His Cys Ser Ala Gly Cys Gly Arg Thr Gly Thr Phe Met Ala Leu
225                 230                 235                     240

Phe Glu Ile Leu Ser Gln Thr Asp Asp Ser Thr Ser Thr Ser Lys Phe
                245                 250                 255

Glu Val Asp Asn Ile Ala Asn Ile Val Ser Ser Leu Arg Ser Gln Arg
            260                 265                 270

Met Gln Ser Val Gln Ser Val Asp Gln Leu Val Phe Leu Tyr Thr Val
        275                 280                 285

Ser Gln Glu Leu Leu Gln Gly Lys Glu Phe Leu Leu Pro Gln Leu
    290                 295                 300
```

```
Met Lys Asp Arg Leu Tyr Phe Ala Thr Leu Arg Asn Arg Pro Lys Ser
1               5                   10                  15

Thr Val Asn Thr His Tyr Phe Ser Ile Asp Glu Glu Leu Val Tyr Glu
            20                  25                  30

Asn Phe Tyr Ala Asp Phe Gly Pro Leu Asn Leu Ala Met Val Tyr Arg
        35                  40                  45

Tyr Cys Cys Lys Leu Asn Lys Lys Leu Lys Ser Tyr Ser Leu Ser Arg
    50                  55                  60

Lys Lys Ile Val His Tyr Thr Cys Phe Asp Gln Arg Lys Arg Ala Asn
65                  70                  75                  80

Ala Ala Phe Leu Ile Gly Ala Tyr Ala Val Ile Tyr Leu Lys Lys Thr
                85                  90                  95

Pro Glu Glu Ala Tyr Arg Ala Leu Leu Ser Gly Ser Asn Pro Pro Tyr
            100                 105                 110

Leu Pro Phe Arg Asp Ala Ser Phe Gly Asn Cys Thr Tyr Asn Leu Thr
        115                 120                 125

Ile Leu Asp Cys Leu Gln Gly Ile Arg Lys Gly Leu Gln His Gly Phe
    130                 135                 140

Phe Asp Phe Glu Thr Ile Asp Val Asp Glu Tyr Glu His Tyr Glu Arg
145                 150                 155                 160

Val Glu Asn Gly Asp Phe Asn Cys Ile Val Pro Gly Lys Phe Leu Ala
            165                 170                 175

Phe Ser Gly Pro His Pro Lys Ser Lys Ile Glu Asn Gly Tyr Pro Leu
        180                 185                 190

His Ala Pro Glu Ala Tyr Phe Pro Tyr Phe Lys Lys His Asn Val Thr
        195                 200                 205
```

```
Ala Val Val Arg Leu Asn Lys Lys Ile Tyr Glu Ala Lys Arg Phe Thr
    210             215                 220

Asp Ala Gly Phe Glu His Tyr Asp Leu Phe Phe Ile Asp Gly Ser Thr
225                 230                 235                 240

Pro Ser Asp Asn Ile Val Arg Arg Phe Leu Asn Ile Cys Glu Asn Thr
            245                 250                 255

Glu Gly Ala Ile Ala Val His Cys Lys Ala Gly Leu Gly Arg Thr Gly
            260                 265                 270

Thr Leu Ile Ala Cys Tyr Val Met Lys His Tyr Arg Phe Thr His Ala
        275                 280                 285

Glu Ile Ile Ala Trp Ile Arg Ile Cys Arg Pro Gly Ser Ile Ile Gly
    290                 295                 300

Pro Gln Gln His Phe Leu Glu Glu Lys Gln Ala Ser Leu Trp Val Gln
305                 310                 315                 320

Gly Asp Ile Phe Arg Ser Lys Leu Lys Asn Arg Pro Ser Ser Glu Gly
            325                 330                 335

Ser Ile Asn Lys Ile Leu Ser Gly Leu Asp Asp Met Ser Ile Gly Gly
        340                 345                 350

Asn Leu Ser Lys Thr Gln Asn Met Glu Arg Phe Gly Glu Asp Asn Leu
        355                 360                 365

Glu Asp Asp Asp Val Glu Met Lys Asn Gly Ile Thr Gln Gly Asp Lys
    370                 375                 380

Leu Arg Ala Leu Lys Ser Gln Arg Gln Pro Arg Thr Ser Pro Ser Cys
385                 390                 395                 400

Ala Phe Arg Ser Asp Thr Lys Gly His Pro Arg Ala Val Ser Gln
            405                 410                 415

Pro Phe Arg Leu Ser Ser Ser Leu Gln Gly Ser Ala Val Thr Leu Lys
            420                 425                 430

Thr Ser Lys Met Ala Leu Ser Pro Ser Ala Thr Ala Lys Arg Ile Asn
        435                 440                 445

Arg Thr Ser Leu Ser Ser Gly Ala Thr Val Arg Ser Phe Ser Ile Asn
    450                 455                 460

Ser Arg Leu Ala Ser Ser Leu Gly Asn Leu Asn Ala Ala Thr Asp Asp
465                 470                 475                 480

Pro Glu Asn Lys Lys Thr Ser Ser Ser Ser Lys Ala Gly Phe Thr Ala
            485                 490                 495

Ser Pro Phe Thr Asn Leu Leu Asn Gly Ser Ser Gln Pro Thr Thr Arg
        500                 505                 510

Asn Tyr Pro Glu Leu Asn Asn Asn Gln Tyr Asn Arg Ser Ser Asn Ser
        515                 520                 525
```

```
Asn Gly Gly Asn Leu Asn Ser Pro Pro Gly Pro His Ser Ala Lys Thr
    530                 535                 540

Glu Glu His Thr Thr Ile Leu Arg Pro Ser Tyr Thr Gly Leu Ser Ser
545                 550                 555                 560

Ser Ser Ala Arg Phe Leu Ser Arg Ser Ile Pro Ser Leu Gln Ser Glu
                565                 570                 575

Tyr Val His Tyr
            580

<210>  31
<211>  459
<212>  PRT
<213>  homo sapiens

<400>  31

Met Lys Arg Lys Ser Glu Arg Arg Ser Ser Trp Ala Ala Ala Pro Pro
1                   5                  10                  15

Cys Ser Arg Arg Cys Ser Ser Thr Ser Pro Gly Val Lys Lys Ile Arg
            20                  25                  30

Ser Ser Thr Gln Gln Asp Pro Arg Arg Arg Asp Pro Gln Asp Asp Val
        35                  40                  45

Tyr Leu Asp Ile Thr Asp Arg Leu Cys Phe Ala Ile Leu Tyr Ser Arg
    50                  55                  60

Pro Lys Ser Ala Ser Asn Val His Tyr Phe Ser Ile Asp Asn Glu Leu
65                  70                  75                  80

Glu Tyr Glu Asn Phe Tyr Ala Asp Phe Gly Pro Leu Asn Leu Ala Met
                85                  90                  95

Val Tyr Arg Tyr Cys Cys Lys Ile Asn Lys Lys Leu Lys Ser Ile Thr
            100                 105                 110

Met Leu Arg Lys Lys Ile Val His Phe Thr Gly Ser Asp Gln Arg Lys
        115                 120                 125

Gln Ala Asn Ala Ala Phe Leu Val Gly Cys Tyr Met Val Ile Tyr Leu
    130                 135                 140

Gly Arg Thr Pro Glu Glu Ala Tyr Arg Ile Leu Ile Phe Gly Glu Thr
145                 150                 155                 160

Ser Tyr Ile Pro Phe Arg Asp Ala Ala Tyr Gly Ser Cys Asn Phe Tyr
                165                 170                 175

Ile Thr Leu Leu Asp Cys Phe His Ala Val Lys Lys Ala Met Gln Tyr
            180                 185                 190

Gly Phe Leu Asn Phe Asn Ser Phe Asn Leu Asp Glu Tyr Glu His Tyr
        195                 200                 205

Glu Lys Ala Glu Asn Gly Asp Leu Asn Trp Ile Ile Pro Asp Arg Phe
    210                 215                 220
```

20

```
Ile Ala Phe Cys Gly Pro His Ser Arg Ala Arg Leu Glu Ser Gly Tyr
225                 230                 235                     240

His Gln His Ser Pro Glu Thr Tyr Ile Gln Tyr Phe Lys Asn His Asn
                245                 250                 255

Val Thr Thr Ile Ile Arg Leu Asn Lys Arg Met Tyr Asp Ala Lys Arg
            260                 265                 270

Phe Thr Asp Ala Gly Phe Asp His His Asp Leu Phe Phe Ala Asp Gly
            275                 280                 285

Ser Thr Pro Thr Asp Ala Ile Val Lys Glu Phe Leu Asp Ile Cys Glu
    290                 295                 300

Asn Ala Glu Gly Ala Ile Ala Val His Cys Lys Ala Gly Leu Gly Arg
305                 310                 315                     320

Thr Gly Thr Leu Ile Ala Cys Tyr Ile Met Lys His Tyr Arg Met Thr
            325                 330                 335

Ala Ala Glu Thr Ile Ala Trp Val Arg Ile Cys Arg Pro Gly Ser Val
            340                 345                 350

Ile Gly Pro Gln Gln Gln Phe Leu Val Met Lys Gln Thr Asn Leu Trp
        355                 360                 365

Leu Glu Gly Asp Tyr Phe Arg Gln Lys Leu Lys Gly Gln Glu Asn Gly
    370                 375                 380

Gln His Arg Ala Ala Phe Ser Lys Leu Leu Ser Gly Val Asp Asp Ile
385                 390                 395                     400

Ser Ile Asn Gly Val Glu Asn Gln Asp Gln Gln Glu Pro Glu Pro Tyr
            405                 410                 415

Ser Asp Asp Asp Glu Ile Asn Gly Val Thr Gln Gly Asp Arg Leu Arg
            420                 425                 430

Ala Leu Lys Ser Arg Arg Gln Ser Lys Thr Asn Ala Ile Pro Leu Thr
            435                 440                 445

Leu Ser Ile Ser Arg Thr Lys Thr Val Leu Arg
    450                 455

<210>   32
<211>   551
<212>   PRT
<213>   Saccharomyces cerevisiae

<400>   32

Met Arg Arg Ser Val Tyr Leu Asp Asn Thr Ile Glu Phe Leu Arg Gly
1               5                   10                  15

Arg Val Tyr Leu Gly Ala Tyr Asp Tyr Thr Pro Glu Asp Thr Asp Glu
            20                  25                  30

Leu Val Phe Phe Thr Val Glu Asp Ala Ile Phe Tyr Asn Ser Phe His
        35                  40                  45
```

```
Leu Asp Phe Gly Pro Met Asn Ile Gly His Leu Tyr Arg Phe Ala Val
    50                  55                  60

Ile Phe His Glu Ile Leu Asn Asp Pro Glu Asn Ala Asn Lys Ala Val
65                  70                  75                  80

Val Phe Tyr Ser Ser Ala Ser Thr Arg Gln Arg Ala Asn Ala Ala Cys
                85                  90                  95

Met Leu Cys Cys Tyr Met Ile Leu Val Gln Ala Trp Thr Pro His Gln
            100                 105                 110

Val Leu Gln Pro Leu Ala Gln Val Asp Pro Pro Phe Met Pro Phe Arg
        115                 120                 125

Asp Ala Gly Tyr Ser Asn Ala Asp Phe Glu Ile Thr Ile Gln Asp Val
    130                 135                 140

Val Tyr Gly Val Trp Arg Ala Lys Glu Lys Gly Leu Ile Asp Leu His
145                 150                 155                 160

Ser Phe Asn Leu Glu Ser Tyr Glu Lys Tyr Glu His Val Glu Phe Gly
                165                 170                 175

Asp Phe Asn Val Leu Thr Pro Asp Pro Ile Ala Phe Ala Ser Pro Gln
            180                 185                 190

Glu Asp His Pro Lys Gly Tyr Leu Ala Thr Lys Ser Ser His Leu Asn
    195                 200                 205

Gln Pro Phe Lys Ser Val Leu Asn Phe Phe Ala Asn Asn Asn Val Gln
    210                 215                 220

Leu Val Val Arg Leu Asn Ser His Leu Tyr Asn Lys Lys His Phe Glu
225                 230                 235                 240

Asp Ile Gly Ile Gln His Leu Asp Leu Ile Phe Glu Asp Gly Thr Cys
                245                 250                 255

Pro Asp Leu Ser Ile Val Lys Asn Phe Val Gly Ala Ala Glu Thr Ile
            260                 265                 270

Ile Lys Arg Gly Gly Lys Ile Ala Val His Cys Lys Ala Gly Leu Gly .
    275                 280                 285

Arg Thr Gly Cys Leu Ile Gly Ala His Leu Ile Tyr Thr Tyr Gly Phe
    290                 295                 300

Thr Ala Asn Glu Cys Ile Gly Phe Leu Arg Phe Ile Arg Pro Gly Met
305                 310                 315                 320

Val Val Gly Pro Gln Gln His Trp Leu Tyr Leu His Gln Asn Asp Phe
                325                 330                 335

Arg Glu Trp Lys Tyr Thr Thr Arg Ile Ser Leu Lys Pro Ser Glu Ala
            340                 345                 350

Ile Gly Gly Leu Tyr Pro Leu Ile Ser Leu Glu Glu Tyr Arg Leu Gln
            355                 360                 365

Lys Lys Lys Leu Lys Asp Asp Lys Arg Val Ala Gln Asn Asn Ile Glu
```

```
              370                  375                    380
Gly Glu Leu Arg Asp Leu Thr Met Thr Pro Pro Ser Asn Gly His Gly
385                  390                    395                  400

Ala Leu Ser Ala Arg Asn Ser Ser Gln Pro Ser Thr Ala Asn Asn Gly
                405                    410                  415

Ser Asn Ser Phe Lys Ser Ser Ala Val Pro Gln Thr Ser Pro Gly Gln
                420                    425                  430

Pro Arg Lys Gly Gln Asn Gly Ser Asn Thr Ile Glu Asp Ile Asn Asn
            435                    440                  445

Asn Arg Asn Pro Thr Ser His Ala Asn Arg Lys Val Val Ile Glu Ser
    450                    455                  460

Asn Asn Ser Asp Asp Glu Ser Met Gln Asp Thr Asn Gly Thr Ser Asn
465                    470                  475                  480

His Tyr Pro Lys Val Ser Arg Lys Lys Asn Asp Ile Ser Ser Ala Ser
                485                    490                  495

Ser Ser Arg Met Glu Asp Asn Glu Pro Ser Ala Thr Asn Ile Asn Asn
            500                    505                  510

Ala Ala Asp Asp Thr Ile Leu Arg Gln Leu Leu Pro Lys Asn Arg Arg
            515                    520                  525

Val Thr Ser Gly Arg Arg Thr Thr Ser Ala Ala Gly Gly Ile Arg Lys
    530                    535                  540

Ile Ser Gly Ser Ile Lys Lys
545                    550

<210>    33
<211>    173
<212>    PRT
<213>    homo sapiens

<400>    33

Met Ala Arg Met Asn Arg Pro Ala Pro Val Glu Val Thr Tyr Lys Asn
1                    5                      10                  15

Met Arg Phe Leu Ile Thr His Asn Pro Thr Asn Ala Thr Leu Asn Lys
            20                    25                    30

Phe Ile Glu Glu Leu Lys Lys Tyr Gly Val Thr Thr Ile Val Arg Val
            35                    40                    45

Cys Glu Ala Thr Tyr Asp Thr Thr Leu Val Glu Lys Glu Gly Ile His
    50                    55                    60

Val Leu Asp Trp Pro Phe Asp Asp Gly Ala Pro Pro Ser Asn Gln Ile
65                    70                    75                  80

Val Asp Asp Trp Leu Ser Leu Val Lys Ile Lys Phe Arg Glu Glu Pro
            85                    90                    95

Gly Cys Cys Ile Ala Val His Cys Val Ala Gly Leu Gly Arg Ala Pro
```

Val Leu Val Ala Leu Ala Leu Ile Glu Gly Gly Met Lys Tyr Glu Asp
          115   120   125

Ala Val Gln Phe Ile Arg Gln Lys Arg Arg Gly Ala Phe Asn Ser Lys
     130   135   140

Gln Leu Leu Tyr Leu Glu Lys Tyr Arg Pro Lys Met Arg Leu Arg Phe
145   150   155   160

Lys Asp Ser Asn Gly His Arg Asn Asn Cys Cys Ile Gln
               165   170

<210> 34
<211> 167
<212> PRT
<213> homo sapiens

<400> 34

Met Asn Arg Pro Ala Pro Val Glu Ile Ser Tyr Glu Asn Met Arg Phe
1   5   10   15

Leu Ile Thr His His Asn Pro Thr Asn Ala Thr Leu Asn Lys Phe Thr Glu
          20   25   30

Glu Leu Lys Lys Tyr Gly Val Thr Thr Leu Val Arg Val Cys Asp Ala
          35   40   45

Thr Tyr Asp Lys Ala Pro Val Glu Lys Glu Gly Ile His Val Leu Asp
     50   55   60

Trp Pro Phe Asp Asp Gly Ala Pro Pro Pro Asn Gln Ile Val Asp Asp
65   70   75   80

Trp Leu Asn Leu Leu Lys Thr Lys Phe Arg Glu Glu Pro Gly Cys Cys
               85   90   95

Val Ala Val His Cys Val Ala Gly Leu Gly Arg Ala Pro Val Leu Val
          100   105   110

Ala Leu Ala Leu Ile Glu Cys Gly Met Lys Tyr Glu Asp Ala Val Gln
          115   120   125

Phe Ile Arg Gln Lys Arg Arg Gly Ala Phe Asn Ser Lys Gln Leu Leu
          130   135   140

Tyr Leu Glu Lys Tyr Arg Pro Lys Met Arg Leu Arg Phe Arg Asp Thr
145   150   155   160

Asn Gly His Cys Cys Val Gln
               165

<210> 35
<211> 167
<212> PRT
<213> Mus musculus

<400> 35

```
Met Asn Arg Pro Ala Pro Val Glu Ile Ser Tyr Glu Asn Met Arg Phe
1               5                   10                  15

Leu Ile Thr His Asn Pro Thr Asn Ala Thr Leu Asn Lys Phe Thr Glu
            20                  25                  30

Glu Leu Lys Lys Tyr Gly Val Thr Thr Leu Val Arg Val Cys Asp Ala
        35                  40                  45

Thr Tyr Asp Lys Ala Pro Val Glu Lys Glu Gly Ile His Val Leu Asp
    50                  55                  60

Trp Pro Phe Asp Asp Gly Ala Pro Pro Pro Asn Gln Ile Val Asp Asp
65                  70          ·           75                  80

Trp Leu Asn Leu Leu Lys Thr Leu Phe Arg Glu Glu Pro Gly Cys Cys
                85                  90                  95

Val Ala Val His Cys Val Ala Gly Ile Gly Arg Ala Pro Val Leu Val
            100                 105                 110

Ala Leu Ala Leu Ile Glu Cys Gly Met Lys Tyr Glu Asp Ala Val Gln
        115                 120                 125

Phe Ile Arg Gln Lys Arg Arg Gly Ala Phe Asn Ser Lys Gln Leu Leu
    130                 135                 140

Tyr Leu Glu Lys Tyr Arg Pro Lys Met Arg Leu Arg Phe Arg Asp Thr
145                 150                 155                 160

Asn Gly His Cys Cys Val Gln
                165

<210>   36
<211>   178
<212>   PRT
<213>   Drosophila melanogaster

<400>   36

Met Ser Ile Thr Met Arg Gln Lys Asp Leu Arg Pro Ala Pro Ala Leu
1               5                   10                  15

Ile Glu Tyr Lys Gly Met Lys Phe Leu Ile Thr Asp Arg Pro Ser Asp
            20                  25                  30

Ile Thr Ile Asn His Tyr Ile Met Glu Leu Lys Lys Asn Asn Val Asn
        35                  40                  45

Thr Val Val Arg Val Cys Glu Pro Ser Tyr Asn Thr Asp Glu Leu Glu
    50                  55                  60

Thr Gln Gly Ile Thr Val Lys Asp Leu Ala Phe Glu Asp Gly Thr Phe
65                  70                  75                  80

Pro Pro Gln Gln Val Val Asp Glu Trp Phe Glu Phe Phe Val Val Leu
                85                  90                  95

Tyr Arg Tyr Gln Gln Asn Pro Glu Ala Cys Val Ala Val His Cys Val
            100                 105                 110
```

```
Ala Gly Leu Gly Arg Ala Pro Val Leu Val Ala Leu Ala Leu Ile Glu
          115                 120                 125

Leu Gly Leu Lys Tyr Glu Ala Ala Val Glu Met Ile Arg Asp Lys Arg
     130                 135                 140

Arg Gly Ala Ile Asn Ala Lys Gln Leu Ser Phe Leu Glu Lys Tyr Lys
145                 150                 155                 160

Pro Lys Ala Arg Leu Lys His Lys Asn Gly His Lys Asn Ser Cys Ser
               165                 170                 175

Val Gln


<210>   37
<211>   1705
<212>   PRT
<213>   Mus musculus

<400>   37

Met Arg Pro Leu Ile Leu Leu Ala Ala Leu Leu Trp Leu Gln Asp Ser
1                 5                 10                 15

Leu Ala Gln Glu Asp Val Cys Ser Ser Leu Asp Gly Ser Pro Asp Arg
               20                 25                 30

Gln Gly Gly Gly Pro Pro Leu Ser Val Asn Val Ser Ser Arg Gly Lys
          35                 40                 45

Pro Thr Ser Leu Phe Leu Ser Trp Val Ala Ala Glu Pro Gly Gly Phe
     50                 55                 60

Asp Tyr Ala Leu Cys Leu Arg Ala Met Asn Leu Ser Gly Phe Pro Glu
65                 70                 75                 80

Gly Gln Gln Leu Gln Ala His Thr Asn Gln Ser Ser Phe Glu His His
               85                 90                 95

Gly Leu Val Pro Gly Ser Arg Tyr Gln Glu Leu Thr Val Leu Arg
          100                 105                 110

Pro Cys Trp Gln Asn Val Thr Ile Thr Leu Thr Ala Arg Thr Ala Pro
          115                 120                 125

Thr Val Arg Gly Leu Gln Leu His Ser Thr Gly Ser Pro Ala Ser
     130                 135                 140

Leu Glu Ala Ser Trp Ser Asp Ala Ser Gly Asp Gln Asp Ser Tyr Gln
145                 150                 155                 160

Leu Leu Leu Tyr His Pro Glu Ser His Thr Leu Ala Cys Asn Val Ser
               165                 170                 175

Val Ser Pro Asp Thr Leu Ser Tyr Asn Phe Gly Asp Leu Leu Pro Gly
          180                 185                 190

Ser Gln Tyr Val Leu Glu Val Ile Thr Trp Ala Gly Ser Leu His Ala
          195                 200                 205
```

26

```
Lys Thr Ser Ile Leu Gln Trp Thr Glu Pro Val Pro Pro Asp His Leu
    210                 215                 220

Thr Leu Arg Ala Leu Gly Thr Ser Ser Leu Gln Ala Phe Trp Asn Ser
225                 230                 235                 240

Ser Glu Gly Ala Thr Trp Phe His Leu Ile Leu Thr Asp Leu Leu Glu
                245                 250                 255

Gly Thr Asn Leu Thr Lys Val Val Arg Gln Gly Ile Ser Thr His Thr
            260                 265                 270

Phe Leu Arg Leu Ser Pro Gly Thr Pro Tyr Gln Leu Lys Ile Cys Ala
        275                 280                 285

Ala Ala Gly Pro His Gln Ile Trp Gly Pro Asn Ala Thr Glu Trp Thr
    290             .   295                 300

Tyr Pro Ser Tyr Pro Ser Asp Leu Val Leu Thr Pro Leu Trp Asn Glu
305                 310                 315                 320

Leu Trp Ala Ser Trp Lys Ala Gly Gln Gly Ala Arg Asp Gly Tyr Val
                325                 330                 335

Leu Lys Leu Ser Gly Pro Val Glu Gln Thr Thr Thr Leu Gly Pro Glu
            340                 345                 350

Glu Cys Asn Ala Val Phe Pro Gly Pro Leu Pro Pro Gly His Tyr Thr
        355                 360                 365

Leu Gly Leu Arg Val Leu Ala Gly Pro Tyr Asp Ala Trp Val Glu Gly
370                 375                 380

Ser Ile Trp Leu Ala Glu Ser Ala Ala Arg Pro Met Glu Val Pro Gly
385                 390                 395                 400

Ala Arg Leu Trp Leu Glu Gly Leu Glu Ala Thr Lys Gln Pro Gly Arg
            405                 410                 415

Arg Ala Leu Leu Tyr Ser Val Asp Ala Pro Gly Leu Leu Gly Asn Ile
            420                 425                 430

Ser Val Ser Ser Gly Ala Thr His Val Thr Phe Cys Gly Leu Val Pro
        435                 440                 445

Gly Ala His Tyr Arg Val Asp Ile Ala Ser Ser Met Gly Asp Ile Thr
    450                 455                 460

Gln Ser Leu Thr Gly Tyr Thr Ser Pro Leu Pro Pro Gln Ser Leu Glu
465                 470                 475                 480

Ile Ile Ser Arg Asn Ser Pro Ser Asp Leu Thr Ile Gly Trp Ala Pro
            485                 490                 495

Ala Pro Gly Gln Met Glu Gly Tyr Lys Val Thr Trp His Gln Asp Gly
        500                 505                 510

Ser Gln Arg Ser Pro Gly Asp Gln Val Asp Leu Gly Pro Asp Ile Ser
    515                 520                 525

Ser Leu Thr Leu Lys Ser Leu Val Pro Gly Ser Cys Tyr Thr Val Ser
```

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          530                    535                    540

Ala Trp Ala Trp Ser Gly Asn Leu Ser Ser Asp Ser Gln Lys Ile His
545                    550                    555                    560

Ser Cys Thr Arg Pro Ala Pro Thr Asn Leu Ser Leu Gly Phe Ala
                    565                    570                    575

His Gln Pro Ala Thr Leu Arg Ala Ser Trp Cys His Pro Pro Gly Gly
                    580                    585                    590

Arg Asp Ala Phe Gln Leu Arg Leu Tyr Arg Leu Arg Pro Leu Thr Leu
                    595                    600                    605

Glu Ser Glu Lys Ile Leu Ser Gln Glu Ala Gln Asn Phe Ser Trp Ala
                    610                    615                    620

Gln Leu Pro Ala Gly Tyr Glu Phe Gln Val Gln Leu Ser Thr Leu Trp
625                    630                    635                    640

Gly Ser Glu Glu Ser Gly Ser Ala Asn Thr Thr Gly Trp Thr Pro Pro
                    645                    650                    655

Ser Ala Pro Thr Leu Val Asn Val Thr Ser Glu Ala Pro Thr Gln Leu
                    660                    665                    670

His Val Ser Trp Val His Ala Ala Ala Gly Asp Arg Ser Ser Tyr Gln Val
                    675                    680                    685

Thr Leu Tyr Gln Glu Ser Thr Arg Thr Ala Thr Ser Ile Val Gly Pro
                    690                    695                    700

Lys Ala Asp Ser Thr Ser Phe Trp Gly Leu Thr Pro Gly Thr Lys Tyr
705                    710                    715                    720

Lys Val Glu Ala Ile Ser Trp Ala Gly Pro Leu Tyr Thr Ala Ala Ala
                    725                    730                    735

Asn Val Ser Ala Trp Thr Tyr Pro Leu Thr Pro Asn Glu Leu Leu Ala
                    740                    745                    750

Ser Met Gln Ala Gly Ser Ala Val Val Asn Leu Ala Trp Pro Ser Gly
                    755                    760                    765

Pro Leu Gly Gln Gly Thr Cys His Ala Gln Leu Ser Asp Ala Gly His
                    770                    775                    780

Leu Ser Trp Glu Gln Pro Leu Ser Leu Gly Gln Asp Leu Leu Met Leu
785                    790                    795                    800

Arg Asn Leu Ile Pro Gly His Thr Val Ser Leu Ser Val Lys Cys Arg
                    805                    810                    815

Ala Gly Pro Leu Gln Ala Ser Thr His Pro Leu Val Leu Ser Val Glu
                    820                    825                    830

Pro Gly Pro Val Glu Asp Val Phe Cys Gln Pro Glu Ala Thr Tyr Leu
                    835                    840                    845

Ser Leu Asn Trp Thr Met Pro Thr Gly Asp Val Ala Val Cys Leu Val
                    850                    855                    860
```

```
Glu Val Glu Gln Leu Val Pro Gly Gly Ser Ala His Phe Val Phe Gln
865                 870                 875                     880

Val Asn Thr Ser Glu Asp Ala Leu Leu Leu Pro Asn Leu Thr Pro Thr
                885                 890                 895

Thr Ser Tyr Arg Leu Ser Leu Thr Val Leu Gly Gly Asn Arg Gln Trp
            900                 905                 910

Ser Arg Ala Val Thr Leu Val Cys Thr Thr Ser Ala Glu Val Trp His
        915                 920                 925

Pro Pro Glu Leu Ala Glu Ala Pro Gln Val Glu Leu Gly Thr Gly Met
    930                 935                 940

Gly Val Thr Val Thr Arg Gly Met Phe Gly Lys Asp Asp Gly Gln Ile
945                 950                 955                     960

Gln Trp Tyr Gly Ile Ile Ala Thr Ile Asn Met Thr Leu Ala Gln Pro
                965                 970                 975

Ser Gln Glu Ala Ile Asn His Thr Trp Tyr Asp His Tyr Tyr Arg Gly
            980                 985                 990

His Asp Ser Tyr Leu Ala Leu Leu  Phe Pro Asn Pro Phe  Tyr Pro Glu
        995                 1000                1005

Pro Trp  Ala Val Pro Arg Ser  Trp Thr Val Pro Val  Gly Thr Glu
    1010                1015                1020

Asp Cys  Asp Asn Thr Gln Glu  Ile Cys Asn Gly His  Leu Lys Pro
    1025                1030                1035

Gly Phe  Gln Tyr Arg Phe Ser  Ile Ala Ala Phe Ser  Arg Leu Ser
    1040                1045                1050

Ser Pro  Glu Thr Ile Leu Ala  Phe Ser Ala Phe Ser  Glu Pro Gln
    1055                1060                1065

Ala Ser  Ile Ser Leu Val Ala  Met Pro Leu Thr Val  Met Met Gly
    1070                1075                1080

Thr Val  Val Gly Cys Ile Ile  Ile Val Cys Ala Val  Leu Cys Leu
    1085                1090                1095

Leu Cys  Arg Arg Arg Leu Lys  Gly Pro Arg Ser Glu  Lys Asn Gly
    1100                1105                1110

Phe Ser  Gln Glu Leu Met Pro  Tyr Asn Leu Trp Arg  Thr His Arg
    1115                1120                1125

Pro Ile  Pro Ser His Ser Phe  Arg Gln Ser Tyr Glu  Ala Lys Ser
    1130                1135                1140

Ala Arg  Ala His Gln Ala Phe  Phe Gln Glu Phe Glu  Glu Leu Lys
    1145                1150                1155

Glu Val  Gly Lys Asp Gln Pro  Arg Leu Glu Ala Glu  His Pro Ala
    1160                1165                1170
```

29

```
Asn Ile  Thr Lys Asn Arg Tyr  Pro His Val Leu Pro  Tyr Asp His
    1175              1180              1185

Ser Arg  Val Arg Leu Thr Gln  Leu Ser Gly Glu Pro  His Ser Asp
    1190              1195              1200

Tyr Ile  Asn Ala Asn Phe Ile  Pro Gly Tyr Ser His  Pro Gln Glu
    1205              1210              1215

Ile Ile  Ala Thr Gln Gly Pro  Leu Lys Lys Thr Val  Glu Asp Phe
    1220              1225              1230

Trp Arg  Leu Val Trp Glu Gln  Gln Val His Val Ile  Ile Met Leu
    1235              1240              1245

Thr Val  Gly Met Glu Asn Gly  Arg Val Leu Cys Glu  His Tyr Trp
    1250              1255              1260

Pro Val  Asn Ser Thr Pro Val  Thr His Gly His Ile  Thr Thr His
    1265              1270              1275

Leu Leu  Ala Glu Glu Ser Glu  Asp Glu Trp Thr Arg  Arg Glu Phe
    1280              1285              1290

Gln Leu  Gln His Gly Ala Glu  Gln Lys Gln Arg Arg  Val Lys Gln
    1295              1300              1305

Leu Gln  Phe Thr Thr Trp Pro  Asp His Ser Val Pro  Glu Ala Pro
    1310              1315              1320

Ser Ser  Leu Leu Ala Phe Val  Glu Leu Val Gln Glu  Glu Val Lys
    1325              1330              1335

Ala Thr  Gln Gly Lys Gly Pro  Ile Leu Val His Cys  Ser Ala Gly
    1340              1345              1350

Val Gly  Arg Thr Gly Thr Phe  Val Ala Leu Leu Pro  Ala Val Arg
    1355              1360              1365

Gln Leu  Glu Glu Glu Gln Val  Val Asp Val Phe Asn  Thr Val Tyr
    1370              1375              1380

Ile Leu  Arg Leu His Arg Pro  Leu Met Ile Gln Thr  Leu Ser Gln .
    1385              1390              1395

Tyr Ile  Phe Leu His Ser Cys  Leu Leu Asn Lys Ile  Leu Glu Gly
    1400              1405              1410

Pro Ser  Asp Ala Ser Asp Ser  Gly Pro Ile Pro Val  Met Asn Phe
    1415              1420              1425

Ala Gln  Ala Cys Ala Lys Arg  Ala Ala Asn Ala Asn  Ala Gly Phe
    1430              1435              1440

Leu Lys  Glu Tyr Arg Leu Leu  Lys Gln Ala Ile Lys  Asp Glu Thr
    1445              1450              1455

Gly Ser  Leu Leu Pro Ser Pro  Asp Tyr Asn Gln Asn  Ser Ile Ala
    1460              1465              1470

Ser Cys  His His Ser Gln Glu  Gln Leu Ala Leu Val  Glu Glu Ser
```

```
      1475                    1480                    1485

Pro Ala  Asp Asn Met Leu Ala  Ala Ser Leu Phe Pro  Gly Gly Pro
      1490                    1495                    1500

Ser Gly  Arg Asp His Val Val  Leu Thr Gly Ser Ala  Gly Pro Lys
      1505                    1510                    1515

Glu Leu  Trp Glu Met Val Trp  Glu His Gly Ala Tyr  Val Leu Val
      1520                    1525                    1530

Ser Leu  Gly Leu Pro Asp Thr  Lys Glu Lys Pro Gln  Asp Ile Trp
      1535                    1540                    1545

Pro Met  Glu Met Gln Pro Ile  Val Thr Asp Met Val  Thr Val His
      1550                    1555                    1560

Arg Val  Ala Glu Ser Asn Thr  Ala Gly Trp Pro Ser  Thr Leu Ile
      1565                    1570                    1575

Arg Val  Ile His Gly Asp Ser  Gly Thr Glu Arg Gln  Val Gln Cys
      1580                    1585                    1590

Leu Gln  Phe Pro His Cys Glu  Thr Gly Ser Glu Leu  Pro Ala Asn
      1595                    1600                    1605

Thr Leu  Leu Thr Phe Leu Asp  Ala Val Gly Gln Cys  Cys Ser Arg
      1610                    1615                    1620

Gly Asn  Ser Lys Lys Pro Gly  Thr Leu Leu Ser His  Ser Ser Lys
      1625                    1630                    1635

Val Thr  Asn Gln Leu Ser Thr  Phe Leu Ala Met Glu  Gln Leu Leu
      1640                    1645                    1650

Gln Gln  Ala Gly Thr Glu Arg  Thr Val Asp Val Phe  Ser Val Ala
      1655                    1660                    1665

Leu Lys  Gln Thr Gln Ala Cys  Gly Leu Lys Thr Pro  Thr Leu Glu
      1670                    1675                    1680

Gln Tyr  Ile Tyr Leu Tyr Asn  Cys Leu Asn Ser Ala  Leu Arg Asn
      1685      .             1690                    1695

Arg Leu  Pro Arg Ala Arg Lys
      1700                    1705

<210>  38
<211>  1711
<212>  PRT
<213>  Rattus norvegicus

<400>  38

Met Arg Pro Leu Ile Leu Leu Ala Ala Leu Leu Trp Leu Gln Gly Phe
1              5                   10                  15

Leu Ala Glu Asp Asp Ala Cys Ser Ser Leu Gly Gly Ser Pro Asp Arg
             20                  25                  30

Gln Gly Gly Gly Pro Leu Leu Ser Val Asn Val Ser Ser His Gly Lys
```

```
                35                      40                      45
Ser Thr Ser Leu Phe Leu Ser Trp Val Ala Ala Glu Leu Gly Gly Phe
    50                  55                  60

Asp Tyr Ala Leu Ser Leu Arg Ser Val Asp Ser Ser Gly Ser Pro Glu
65                  70                  75                  80

Gly Gln Gln Leu Gln Ala His Thr Asn Glu Ser Gly Phe Glu Phe His
                85                  90                  95

Gly Leu Val Pro Gly Ser Arg Tyr Gln Leu Lys Leu Thr Val Leu Arg
            100                 105                 110

Pro Cys Trp Gln Asn Val Thr Ile Thr Leu Thr Ala Arg Thr Ala Pro
            115                 120                 125

Thr Val Val Arg Gly Leu Gln Leu His Ser Ala Gly Ser Pro Ala Arg
        130                 135                 140

Leu Glu Ala Ser Trp Ser Asp Ala Pro Gly Asp Gln Asp Ser Tyr Gln
145                 150                 155                 160

Leu Leu Leu Tyr His Leu Glu Ser Gln Thr Leu Ala Cys Asn Val Ser
            165                 170                 175

Val Ser Pro Asp Thr Leu Ser Tyr Ser Phe Gly Asp Leu Leu Pro Gly
            180                 185                 190

Thr Gln Tyr Val Leu Glu Val Ile Thr Trp Ala Gly Ser Leu His Ala
        195                 200                 205

Lys Thr Ser Ile Leu Gln Trp Thr Glu Pro Val Pro Pro Asp His Leu
210                 215                 220

Ala Leu Arg Ala Leu Gly Thr Ser Ser Leu Gln Ala Phe Trp Asn Ser
225                 230                 235                 240

Ser Glu Gly Ala Thr Ser Phe His Leu Met Leu Thr Asp Leu Leu Gly
            245                 250                 255

Gly Thr Asn Thr Thr Ala Val Ile Arg Gln Gly Val Ser Thr His Thr
        260                 265                 270

Phe Leu His Leu Ser Pro Gly Thr Pro His Glu Leu Lys Ile Cys Ala
        275                 280                 285

Ser Ala Gly Pro His Gln Ile Trp Gly Pro Ser Ala Thr Glu Trp Thr
    290                 295                 300

Tyr Pro Ser Tyr Pro Ser Asp Leu Val Leu Thr Pro Leu Arg Asn Glu
305                 310                 315                 320

Leu Trp Ala Ser Trp Lys Ala Gly Leu Gly Ala Arg Asp Gly Tyr Val
            325                 330                 335

Leu Lys Leu Ser Gly Pro Met Glu Ser Thr Ser Thr Leu Gly Pro Glu
        340                 345                 350

Glu Cys Asn Ala Val Phe Pro Gly Pro Leu Pro Pro Gly His Tyr Thr
        355                 360                 365
```

```
Leu Gln Leu Lys Val Leu Ala Gly Pro Tyr Asp Ala Trp Val Glu Gly
    370             375             380

Ser Thr Trp Leu Ala Glu Ser Ala Ala Leu Pro Arg Glu Val Pro Gly
385             390             395             400

Ala Arg Leu Trp Leu Asp Gly Leu Glu Ala Ser Lys Gln Pro Gly Arg
            405             410             415

Arg Ala Leu Leu Tyr Ser Asp Asp Ala Pro Gly Ser Leu Gly Asn Ile
            420             425             430

Ser Val Pro Ser Gly Ala Thr His Val Ile Phe Cys Gly Leu Val Pro
            435             440             445

Gly Ala His Tyr Arg Val Asp Ile Ala Ser Ser Thr Gly Asp Ile Ser
    450             455             460

Gln Ser Ile Ser Gly Tyr Thr Ser Pro Leu Pro Pro Gln Ser Leu Glu
465             470             475             480

Val Ile Ser Arg Ser Ser Pro Ser Asp Leu Thr Ile Ala Trp Gly Pro
            485             490             495

Ala Pro Gly Gln Leu Glu Gly Tyr Lys Val Thr Trp His Gln Asp Gly
            500             505             510

Ser Gln Arg Ser Pro Gly Asp Leu Val Asp Leu Gly Pro Asp Thr Leu
    515             520             525

Ser Leu Thr Leu Lys Ser Leu Val Pro Gly Ser Ser Tyr Thr Val Ser
    530             535             540

Ala Trp Ala Trp Ala Gly Asn Leu Gly Ser Asp Ser Gln Lys Ile His
545             550             555             560

Ser Cys Thr Arg Pro Ala Pro Pro Thr Asn Leu Ser Leu Gly Phe Ala
            565             570             575

His Gln Pro Ala Ala Leu Lys Ala Ser Trp Tyr His Pro Pro Gly Gly
            580             585             590

Arg Asp Ala Phe His Leu Arg Leu Tyr Arg Leu Arg Pro Leu Thr Leu
    595             600             605

Glu Ser Glu Lys Val Leu Pro Arg Glu Ala Gln Asn Phe Ser Trp Ala
    610             615             620

Gln Leu Thr Ala Gly Cys Glu Phe Gln Val Gln Leu Ser Thr Leu Trp
625             630             635             640

Gly Ser Glu Arg Ser Ser Ser Ala Asn Ala Thr Gly Trp Thr Pro Pro
            645             650             655

Ser Ala Pro Thr Leu Val Asn Val Thr Ser Asp Ala Pro Thr Gln Leu
            660             665             670

Gln Val Ser Trp Ala His Val Pro Gly Gly Arg Ser Arg Tyr Gln Val
    675             680             685
```

33

Thr Leu Tyr Gln Glu Ser Thr Arg Thr Ala Thr Ser Ile Met Gly Pro
   690   695   700

Lys Glu Asp Gly Thr Ser Phe Leu Gly Leu Thr Pro Gly Thr Lys Tyr
705   710   715   720

Lys Val Glu Val Ile Ser Trp Ala Gly Pro Leu Tyr Thr Ala Ala Ala
           725   730   735

Asn Val Ser Ala Trp Thr Tyr Pro Leu Ile Pro Asn Glu Leu Leu Val
         740   745   750

Ser Met Gln Ala Gly Ser Ala Val Val Asn Leu Ala Trp Pro Ser Gly
       755   760   765

Pro Leu Gly Gln Gly Ala Cys His Ala Gln Leu Ser Asp Ala Gly His
   770   775   780

Leu Ser Trp Glu Gln Pro Leu Lys Leu Gly Gln Glu Leu Phe Met Leu
785   790   795   800

Arg Asp Leu Thr Pro Gly His Thr Ile Ser Met Ser Val Arg Cys Arg
         805   810   815

Ala Gly Pro Leu Gln Ala Ser Thr Arg Leu Val Val Leu Ser Val Glu
       820   825   830

Pro Gly Pro Val Glu Asp Val Leu Cys His Pro Glu Ala Thr Tyr Leu
       835   840   845

Ala Leu Asn Trp Thr Met Pro Ala Gly Asp Val Asp Val Cys Leu Val
850   855   860

Val Val Glu Arg Leu Val Pro Gly Gly Gly Thr His Phe Val Phe Gln
865   870   875   880

Val Asn Thr Ser Gly Asp Ala Leu Leu Leu Pro Asn Leu Met Pro Thr
         885   890   895

Thr Ser Tyr Arg Leu Ser Leu Thr Val Leu Gly Arg Asn Ser Arg Trp
       900   905   910

Ser Arg Ala Val Ser Leu Val Cys Ser Thr Ser Ala Glu Ala Trp His
       915   920   925

Pro Pro Glu Leu Ala Glu Pro Pro Gln Val Glu Leu Gly Thr Gly Met
   930   935   940

Gly Val Thr Val Met Arg Gly Met Phe Gly Lys Asp Asp Gly Gln Ile
945   950   955   960

Gln Trp Tyr Gly Ile Ile Ala Thr Ile Asn Met Thr Leu Ala Gln Pro
         965   970   975

Ser Arg Glu Ala Ile Asn Tyr Thr Trp Tyr Asp His Tyr Tyr Arg Gly
       980   985   990

Cys Glu Ser Phe Leu Ala Leu Leu Phe Pro Asn Pro Phe Tyr Pro Glu
       995   1000   1005

Pro Trp Ala Gly Pro Arg Ser Trp Thr Val Pro Val Gly Thr Glu

```
Asp Cys  Asp Asn Thr Gln Glu  Ile Cys Asn Gly Arg  Leu Lys Ser
    1025                 1030                 1035

Gly Phe  Gln Tyr Arg Phe Ser  Val Val Ala Phe Ser  Arg Leu Asn
    1040                 1045                 1050

Thr Pro  Glu Thr Ile Leu Ala  Phe Ser Ala Phe Ser  Glu Pro Arg
    1055                 1060                 1065

Ala Ser  Ile Ser Leu Ala Ile  Ile Pro Leu Thr Val  Met Leu Gly
    1070                 1075                 1080

Ala Val  Val Gly Ser Ile Val  Ile Val Cys Ala Val  Leu Cys Leu
    1085                 1090                 1095

Leu Arg  Trp Arg Cys Leu Lys  Gly Pro Arg Ser Glu  Lys Asp Gly
    1100                 1105                 1110

Phe Ser  Lys Glu Leu Met Pro  Tyr Asn Leu Trp Arg  Thr His Arg
    1115                 1120                 1125

Pro Ile  Pro Ile His Ser Phe  Arg Gln Ser Tyr Glu  Ala Lys Ser
    1130                 1135                 1140

Ala His  Ala His Gln Thr Phe  Phe Gln Glu Phe Glu  Glu Leu Lys
    1145                 1150                 1155

Glu Val  Gly Lys Asp Gln Pro  Arg Leu Glu Ala Glu  His Pro Asp
    1160                 1165                 1170

Asn Ile  Ile Lys Asn Arg Tyr  Pro His Val Leu Pro  Tyr Asp His
    1175                 1180                 1185

Ser Arg  Val Arg Leu Thr Gln  Leu Pro Gly Glu Pro  His Ser Asp
    1190                 1195                 1200

Tyr Ile  Asn Ala Asn Phe Ile  Pro Gly Tyr Ser His  Thr Gln Glu
    1205                 1210                 1215

Ile Ile  Ala Thr Gln Gly Pro  Leu Lys Lys Thr Leu  Glu Asp Phe
    1220                 1225                 1230

Trp Arg  Leu Val Trp Glu Gln  Gln Val His Val Ile  Ile Met Leu
    1235                 1240                 1245

Thr Val  Gly Met Glu Asn Gly  Arg Val Leu Cys Glu  His Tyr Trp
    1250                 1255                 1260

Pro Ala  Asn Ser Thr Pro Val  Thr His Gly His Ile  Thr Ile His
    1265                 1270                 1275

Leu Leu  Ala Glu Glu Pro Glu  Asp Glu Trp Thr Arg  Arg Glu Phe
    1280                 1285                 1290

Gln Leu  Gln His Gly Thr Glu  Gln Lys Gln Arg Arg  Val Lys Gln
    1295                 1300                 1305

Leu Gln  Phe Thr Thr Trp Pro  Asp His Ser Val Pro  Glu Ala Pro
    1310                 1315                 1320
```

```
Ser Ser  Leu Leu Ala Phe Val  Glu Leu Val Gln Glu  Gln Val Gln
    1325                1330                1335

Ala Thr  Gln Gly Lys Gly Pro  Ile Leu Val His Cys  Ser Ala Gly
    1340                1345                1350

Val Gly  Arg Thr Gly Thr Phe  Val Ala Leu Leu Arg  Leu Leu Arg
    1355                1360                1365

Gln Leu  Glu Glu Glu Lys Val  Ala Asp Val Phe Asn  Thr Val Tyr
    1370                1375                1380

Ile Leu  Arg Leu His Arg Pro  Leu Met Ile Gln Thr  Leu Ser Gln
    1385                1390                1395

Tyr Ile  Phe Leu His Ser Cys  Leu Leu Asn Lys Ile  Leu Glu Gly
    1400                1405                1410

Pro Pro  Asp Ser Ser Asp Ser  Gly Pro Ile Ser Val  Met Asp Phe
    1415                1420                1425

Ala Gln  Ala Cys Ala Lys Arg  Ala Ala Asn Ala Asn  Ala Gly Phe
    1430                1435                1440

Leu Lys  Glu Tyr Lys Leu Leu  Lys Gln Ala Ile Lys  Asp Gly Thr
    1445                1450                1455

Gly Ser  Leu Leu Pro Pro Pro  Asp Tyr Asn Gln Asn  Ser Ile Val
    1460                1465                1470

Ser Arg  Arg His Ser Gln Glu  Gln Phe Ala Leu Val  Glu Glu Cys
    1475                1480                1485

Pro Glu  Asp Ser Met Leu Glu  Ala Ser Leu Phe Pro  Gly Gly Pro
    1490                1495                1500

Ser Gly  Cys Asp His Val Val  Leu Thr Gly Ser Ala  Gly Pro Lys
    1505                1510                1515

Glu Leu  Trp Glu Met Val Trp  Glu His Asp Ala His  Val Leu Val
    1520                1525                1530

Ser Leu  Gly Leu Pro Asp Thr  Lys Glu Lys Pro Pro  Asp Ile Trp
    1535                1540                1545

Pro Val  Glu Met Gln Pro Ile  Val Thr Asp Met Val  Thr Val His
    1550                1555                1560

Arg Val  Ser Glu Ser Asn Thr  Thr Thr Gly Trp Pro  Ser Thr Leu
    1565                1570                1575

Phe Arg  Val Ile His Gly Glu  Ser Gly Lys Glu Arg  Gln Val Gln
    1580                1585                1590

Cys Leu  Gln Phe Pro Cys Ser  Glu Ser Gly Cys Glu  Leu Pro Ala
    1595                1600                1605

Asn Thr  Leu Leu Thr Phe Leu  Asp Ala Val Gly Gln  Cys Cys Phe
    1610                1615                1620
```

```
Arg Gly  Lys Ser Lys Lys Pro  Gly Thr Leu Leu Ser  His Ser Ser
     1625                1630                1635

Lys Asn  Thr Asn Gln Leu Gly  Thr Phe Leu Ala Met  Glu Gln Leu
     1640                1645                1650

Leu Gln  Gln Ala Gly Thr Glu  Arg Thr Val Asp Val  Phe Asn Val
     1655                1660                1665

Ala Leu  Lys Gln Ser Gln Ala  Cys Gly Leu Met Thr  Pro Thr Leu
     1670                1675                1680

Glu Gln  Tyr Ile Tyr Leu Tyr  Asn Cys Leu Asn Ser  Ala Leu Leu
     1685                1690                1695

Asn Gly  Leu Pro Arg Ala Gly  Lys Trp Pro Ala Pro  Cys
     1700                1705                1710


<210>  39
<211>  625
<212>  PRT
<213>  HOMO SAPIENS

<400>  39

Met Ala Gly Asp Arg Leu Pro Arg Lys Val Met Asp Ala Lys Lys Leu
1               5               10                  15

Ala Ser Leu Leu Arg Gly Gly Pro Gly Gly Pro Leu Val Ile Asp Ser
            20              25                  30

Arg Ser Phe Val Glu Tyr Asn Ser Trp His Val Leu Ser Ser Val Asn
        35              40                  45

Ile Cys Cys Ser Lys Leu Val Lys Arg Arg Leu Gln Gln Gly Lys Val
    50              55                  60

Thr Ile Ala Glu Leu Ile Gln Pro Ala Ala Arg Ser Gln Val Glu Ala
65              70              75                  80

Thr Glu Pro Gln Asp Val Val Val Tyr Asp Gln Ser Thr Arg Asp Ala
            85              90                  95

Ser Val Leu Ala Ala Asp Ser Phe Leu Ser Ile Leu Leu Ser Lys Leu
            100             105                 110

Asp Gly Cys Phe Asp Ser Val Ala Ile Leu Thr Gly Gly Phe Ala Thr
        115             120             125

Phe Ser Ser Cys Phe Pro Gly Leu Cys Glu Gly Lys Pro Ala Ala Leu
    130             135             140

Leu Pro Met Ser Leu Ser Gln Pro Cys Leu Pro Val Pro Ser Val Gly
145             150             155                 160

Leu Thr Arg Ile Leu Pro His Leu Tyr Leu Gly Ser Gln Lys Asp Val
            165             170                 175

Leu Asn Lys Asp Leu Met Thr Gln Asn Gly Ile Ser Tyr Val Leu Asn
            180             185                 190
```

37

```
Ala Ser Asn Ser Cys Pro Lys Pro Asp Phe Ile Cys Glu Ser Arg Phe
        195             200             205

Met Arg Val Pro Ile Asn Asp Asn Tyr Cys Glu Lys Leu Leu Pro Trp
    210             215             220

Leu Asp Lys Ser Ile Glu Phe Ile Asp Lys Ala Lys Leu Ser Ser Cys
225             230             235             240

Gln Val Ile Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile
            245             250             255

Ala Ile Ala Tyr Ile Met Lys Thr Met Gly Met Ser Ser Asp Asp Ala
        260             265             270

Tyr Arg Phe Val Lys Asp Arg Arg Pro Ser Ile Ser Pro Asn Phe Asn
    275             280             285

Phe Leu Gly Gln Leu Leu Glu Tyr Glu Arg Thr Leu Lys Leu Leu Ala
    290             295             300

Ala Leu Gln Gly Asp Pro Gly Thr Pro Ser Gly Thr Pro Glu Pro Pro
305             310             315             320

Pro Ser Pro Ala Ala Gly Ala Pro Leu Pro Arg Leu Pro Pro Pro Thr
            325             330             335

Ser Glu Ser Ala Ala Thr Gly Asn Ala Ala Ala Arg Glu Gly Gly Leu
            340             345             350

Ser Ala Gly Gly Glu Pro Pro Ala Pro Pro Thr Pro Pro Ala Thr Ser
    355             360             365

Ala Leu Gln Gln Gly Leu Gly Leu His Leu Ser Ser Asp Arg Leu
    370             375             380

Gln Asp Thr Asn Arg Leu Lys Arg Ser Phe Ser Leu Asp Ile Lys Ser
385             390             395             400

Ala Tyr Ala Pro Ser Arg Arg Pro Asp Gly Pro Gly Pro Pro Asp Pro
            405             410             415

Gly Glu Ala Pro Lys Leu Cys Lys Leu Asp Ser Pro Ser Gly Ala Ala
            420             425             430

Leu Gly Leu Ser Ser Pro Ser Pro Asp Ser Pro Asp Ala Ala Pro Glu
        435             440             445

Ala Arg Pro Arg Pro Arg Arg Arg Pro Arg Pro Ala Gly Ser Pro
    450             455             460

Ala Arg Ser Pro Ala His Ser Leu Gly Leu Asn Phe Gly Asp Ala Ala
465             470             475             480

Arg Gln Thr Pro Arg His Gly Leu Ser Ala Leu Ser Ala Pro Gly Leu
            485             490             495

Pro Gly Pro Gly Gln Pro Ala Gly Pro Gly Ala Trp Ala Pro Pro Leu
            500             505             510

Asp Ser Pro Gly Thr Pro Ser Pro Asp Gly Pro Trp Cys Phe Ser Pro
```

38

```
              515                    520                    525

Glu Gly Ala Gln Gly Ala Gly Gly Val Leu Phe Ala Pro Phe Gly Arg
    530                    535                    540

Ala Gly Ala Pro Gly Pro Gly Gly Gly Ser Asp Leu Arg Arg Arg Glu
545                    550                    555                    560

Ala Ala Arg Ala Glu Pro Arg Asp Ala Arg Thr Gly Trp Pro Glu Glu
                   565                    570                    575

Pro Ala Pro Glu Thr Gln Phe Lys Arg Arg Ser Cys Gln Met Glu Phe
                580                    585                    590

Glu Glu Gly Met Val Glu Gly Arg Ala Arg Gly Glu Glu Leu Ala Ala
            595                    600                    605

Leu Gly Lys Gln Ala Ser Phe Ser Gly Ser Val Glu Val Ile Glu Val
    610                    615                    620

Ser
625

<210>   40
<211>   663
<212>   PRT
<213>   Mus musculus

<400>   40

Met Ala Gly Asp Arg Leu Pro Arg Lys Val Met Asp Ala Lys Lys Leu
1                   5                   10                  15

Ala Ser Leu Leu Arg Gly Gly Pro Gly Gly Pro Leu Val Ile Asp Ser
            20                  25                  30

Arg Ser Phe Val Glu Tyr Asn Ser Cys His Val Leu Ser Ser Val Asn
        35                  40                  45

Ile Cys Cys Ser Lys Leu Val Lys Arg Arg Leu Gln Gln Gly Lys Val
    50                  55                  60

Thr Ile Ala Glu Leu Ile Gln Pro Ala Thr Arg Ser Gln Val Asp Ala
65                  70                  75                  80

Thr Glu Pro Gln Asp Val Val Val Tyr Asp Gln Ser Thr Arg Asp Ala
                85                  90                  95

Ser Val Leu Ala Ala Asp Ser Phe Leu Ser Ile Leu Leu Ser Lys Leu
            100                 105                 110

Asp Gly Cys Phe Asp Ser Val Ala Ile Leu Thr Gly Gly Phe Ala Thr
        115                 120                 125

Phe Ser Ser Cys Phe Pro Gly Leu Cys Glu Gly Lys Pro Ala Thr Leu
    130                 135                 140

Pro Ser Met Ser Leu Ser Gln Pro Cys Leu Pro Val Pro Ser Val Gly
145                 150                 155                 160

Leu Thr Arg Ile Leu Pro His Leu Tyr Leu Gly Ser Gln Lys Asp Val
```

                                    39

Leu Asn Lys Asp Leu Met Thr Gln Asn Gly Ile Ser Tyr Val Leu Asn
        180   185   190

Ala Ser Asn Ser Cys Pro Lys Pro Asp Phe Ile Cys Glu Ser Arg Phe
        195   200   205

Met Arg Ile Pro Ile Asn Asp Asn Tyr Cys Glu Lys Leu Leu Pro Trp
210   215   220

Leu Asp Lys Ser Ile Glu Phe Ile Asp Lys Ala Lys Leu Ser Ser Cys
225   230   235   240

Gln Val Ile Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile
        245   250   255

Ala Ile Ala Tyr Ile Met Lys Thr Met Gly Met Ser Ser Asp Asp Ala
        260   265   270

Tyr Arg Phe Val Lys Asp Arg Arg Pro Ser Ile Ser Pro Asn Phe Asn
        275   280   285

Phe Leu Gly Gln Leu Leu Glu Tyr Glu Arg Ser Leu Lys Leu Leu Ala
        290   295   300

Ala Leu Gln Thr Asp Gly Pro His Leu Gly Thr Pro Glu Pro Leu Met
305   310   315   320

Gly Pro Ala Ala Gly Ile Pro Leu Pro Arg Leu Pro Pro Ser Thr Ser
        325   330   335

Glu Ser Ala Ala Thr Gly Ser Glu Ala Ala Thr Ala Ala Arg Glu Gly
        340   345   350

Ser Pro Ser Ala Gly Gly Asp Ala Pro Ile Pro Ser Thr Ala Pro Ala
        355   360   365

Thr Ser Ala Leu Gln Gln Gly Leu Arg Gly Leu His Leu Ser Ser Asp
        370   375   380

Arg Leu Gln Asp Thr Asn Arg Leu Lys Arg Ser Phe Ser Leu Asp Ile
385   390   395   400

Lys Ser Ala Tyr Ala Pro Ser Arg Arg Pro Asp Phe Pro Gly Pro Pro
        405   410   415

Asp Pro Gly Glu Ala Pro Lys Leu Cys Lys Leu Asp Ser Pro Ser Gly
        420   425   430

Gly Thr Leu Gly Leu Pro Ser Pro Ser Pro Asp Ser Pro Asp Ser Val
        435   440   445

Pro Glu Cys Arg Pro Arg Pro Arg Arg Arg Pro Pro Ala Ser Ser
        450   455   460

Pro Ala Arg Ser Pro Ala His Gly Leu Gly Leu Asn Phe Gly Asp Thr
465   470   475   480

Ala Arg Gln Thr Pro Arg His Gly Leu Ser Ala Leu Ser Ala Pro Gly
        485   490   495

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Leu Pro Gly Pro Gly Gln Pro Ala Gly Pro Gly Gly Trp Val Pro Pro
        500                 505                 510

Leu Asp Ser Pro Gly Thr Pro Ser Pro Asp Gly Pro Trp Cys Phe Ser
        515                 520                 525

Pro Glu Gly Ala Gln Gly Pro Gly Ala Val Phe Ser Ala Phe Gly Arg
    530                 535                 540

Val Ser Ala Gly Ala Pro Gly Pro Gly Asn Ser Ser Ser Ser Gly Gly
545                 550                 555                 560

Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly
            565                 570                 575

Ser Ser Ser Ser Asn Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
        580                 585                 590

Ser Ser Ser Ser Ser Ser Ser Ser Asp Leu Arg Arg Arg Asp Val Arg
        595                 600                 605

Thr Gly Trp Pro Glu Glu Pro Ala Ala Asp Ala Gln Phe Lys Arg Arg
    610                 615                 620

Ser Cys Gln Met Glu Phe Glu Glu Gly Met Val Glu Gly Arg Ala Arg
625                 630                 635                 640

Gly Glu Glu Leu Ala Ala Leu Gly Lys Gln Thr Ser Phe Ser Gly Ser
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Val Glu Val Ile Glu Val Ser
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<213>   HOMO SAPIENS

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agagtattga taaattttg aaaattgttg aagctgagta atgggctttc agtccagtgt   120

aaagctgttg gagcgcggga gcaaaggtaa agaatgatgt aatgcgctgg ctgctccaaa   180

gcatcttttg ttgtggaatg gttattccag tcatctcttt atgaatcaaa tgtgaggggc   240

tgctttgtgt acggagtcct ttgcaagagc acatcaacgg gaaagagaaa gagacattca   300

cttggagggc tcttgctgaa aatgggttta actctccttt tgccagtcac caccagcctg   360

acctcataca cttttagtac aatggagtgg ctgagccttt gagcacacca ccattacatc   420

atcgtggcaa attaaagaag gaggtgggaa aagaggactt attgttgtca tggcccatga   480

gatgattgga actcaaattg ttactgagag gttggtggct ctgctggaaa gtggaacgga   540

aaaagtgctg ctaattgata gccggccatt tgtggaatac aatacatccc acattttgga   600

agccattaat atcaactgct ccaagcttat gaagcgaagg ttgcaacagg acaaagtgtt   660
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41

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aattacagag ctcatccagc attcagcgaa acataaggtt gacattgatt gcagtcagaa    720

ggttgtagtt tacgatcaaa gctcccaaga tgttgcctct ctctcttcag actgttttct    780

cactgtactt ctgggtaaac tggagaagag cttcaactct gttcacctgc ttgcaggtgg    840

gtttgctgag ttctctcgtt gtttccctgg cctctgtgaa ggaaaatcca ctctagtccc    900

tacctgcatt tctcagcctt gcttacctgt tgccaacatt gggccaaccc gaattcttcc    960

caatctttat cttggctgcc agcgagatgt cctcaacaag gagctgatgc agcagaatgg    1020

gattggttat gtgttaaatg ccagcaatac ctgtccaaag cctgacttta tccccgagtc    1080

tcatttcctg cgtgtgcctg tgaatgacag cttttgtgag aaaattttgc cgtggttgga    1140

caaatcagta gatttcattg agaaagcaaa agcctccaat ggatgtgttc tagtgcactg    1200

tttagctggg atctcccgct ccgccaccat cgctatcgcc tacatcatga agaggatgga    1260

catgtcttta gatgaagctt acagatttgt gaaagaaaaa agacctacta tatctccaaa    1320

cttcaatttt ctgggccaac tcctggccta tgagaagaag attaagaacc agactggagc    1380

atcagggcca aagagcaaac tcaagctgct gcccctggag aagccaaatg aacctgtccc    1440

tgctgtctca gagggtggac agaaaagcga gacgcccctc agtccaccct gtgccgactc    1500

tgctacctca gaggcagcag gacaaaggcc cgtgcatccc gccagcgtgc ccagcgtgcc    1560

cagcgtgcag ccgtcgctgt tagaggacag cccgctggta caggcgctca gtgggctgca    1620

cctgtccgca gacaggctgg aagacagcaa taagctcaag cgttccttct ctctggatat    1680

caaatcagtt tcatattcag ccagcatggc agcatcctta catggcttct cctcatcaga    1740

agatgctttg gaatactaca aaccttccac tactctggat gggaccaaca agctatgcca    1800

gttctcccct gttcaggaac tatcggagca gactcccgaa accagtcctg ataaggagga    1860

agccagcatc cccaagaagc tgcagaccgc caggccttca gacagccaga gcaagcgatt    1920

gcattcggtc agaaccagca gcagtggcac cgcccagagg tcccttttat ctccactgca    1980

tcgaagtggg agcgtggagg acaattacca caccagcttc cttttcggcc tttccaccag    2040

ccagcagcac ctcacgcaagt ctgctggcct gggccttaag ggctggcact cggatatctt    2100

ggcccccag acctctaccc cttccctgac cagcagctgg tattttgcca cagagtcctc    2160

acacttctac tctgcctcag ccatctacgg aggcagtgcc agttactctg cctacagctg    2220

cagccagctg cccacttgcg gagaccaagt ctattctgtg cgcaggcggc agaagccaag    2280

tgacagagct gactcgcggc ggagctggca tgaagagagc cccttttgaaa agcagtttaa    2340

acgcagaagc tgccaaatgg aatttggaga gagcatcatg tcagagaaca ggtcacggga    2400

agagctgggg aaagtgggca gtcagtctag cttttcgggc agcatggaaa tcattgaggt    2460
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ctcctgagaa gaaagacact tgtgacttct atagacaatt tttttttctt gttcacaaaa    2520

aaattccctg ggaatctgaa atatgtatgt gggcatacat atatattttt ggaaaatgga    2580

gctatggtgt aaaagcaaca ggtggatcaa cccagttgtt actctcttaa catctgcatt    2640

tcagagatca gctaatactt gctctcaaca aaaatggaag ggcagatgct agaatccccc    2700

ctagacggag gaaaaccatt ttattcagtg aattacacat cctccttgttc ttaaaaaagc    2760

aagtgtcttt ggtgttggag gacaaaatcc cctaccattt tcacgttgtg ctactaagag    2820

atctcaaata ttagtctttg tccggaccct tccatagtac accttagcgc tgagactgag    2880

ccagcttggg ggtcaggtag gtagaccctg ttagggacag agcctagtgg taaatccaag    2940

agaaatgatc ctatccaaag ctgattcaca aacccacgct cacctgacag ccgagggaca    3000

cgagcatcac tctgctggac ggaccattag gggccttgcc aaggtctacc ttagagcaaa    3060

cccagtacct cagacaggaa agtcggggct ttgaccacta ccatatctgg tagcccattt    3120

tctaggcatt gtgaataggt aggtagctag tcacacttttt cagaccaatt caaactgtct    3180

atgcacaaaa ttcccgtggg cctagatgga gataattttt ttttcttctc agctttatga    3240

agagaaggga aactgtctag gattcagctg aaccaccagg aacctggcaa catcacgatt    3300

taagctaagg ttgggaggct aacgagtcta cctccctctt tgtaaatcaa agaattgttt    3360

aaaatgggat tgtcaatcct ttaaataaag atgaacttgg tttcaagcca aatgtgaatt    3420

tatttgggtt ggtagcagag cagcagcacc ttcaaattct cagccaaagc agatgttttt    3480

gcccttttctg cttcactgca tggatacagt tggtaaaatg taataatatg gcagaatttt    3540

ataggaaact tcctagggag gtaaattatg ggaagattaa gaaaggtaca aattgctgag    3600

gagaagcagg aaacctgttt ccttagtggc ttttatcccc tcggcatgcg atggggctga    3660

tgtttctata attgcctcag actttcacat ttactagtag ggctgagaga ggctttagtg    3720

aggaaagaat attcagaata aaacggttga gaaagctgag aagaccattg agttttgatc    3780

agttgtgaat agagtgcaaa gccatggcca agctgttttt ggaaacgctg gccggcgtgt    3840

cttcagtgga aaaagcaaat caaaatggag cgagagcaaa ggggcgtcct cagtcctcaa    3900

cctacaatca ctgtatggaa tcggtcctgg cagctgaaca taggaggtca ctggaacaag    3960

tgatagtgca gattggcttt caaacatcct cctggcttga gtttttatcag ctacaatgtg    4020

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ggtgacttct aaaaccagca cagaatgata tgactcaaca cagaccgact tggttatggg    4260

gatgatgagc cgcacagacc tcactagttg tgcacaaata atgtgctatg atggggtgta    4320
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                                    43

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aagtgaaggc agaagagggt cagccgcatt gttatgatac tgggaaagtg ccggtcaacg    4380

atttgagtta gtttttagat atacattgaa atctttaatc agacattctc aagtttcaca    4440

cagtagtttt tgatgttatg tacacacaca ccaaatgtgt aacagttcac cacttccaga    4500

gtgtggtcat gcccaaaaca tgtttaagaa aggaaagcag tagctccttg ctaacgatgt    4560

ttcaggaggt ttgggcact tggtttaat gagcttctgt catttagggc ttctcttggc      4620

catggtcccc ttccttctgg aactgtgatg tagtcacatc ctacagccc tagtgctggt     4680

tcactagtgt cagataatca gttcttggaa tcgagactgc cgtggcgaag gggtggcctc     4740

ggaggcaggc tctggagctg cttggatgtc tttaggtggg gtggtggctg gctctcttca     4800

gcatgtaatt gggaaccc tcgcgtctac tagggtgat acagatggtg atttaaaga        4860

gcaaaactag acttctatgt gagaagtgct ggaaatgat ttaggacgtg taaagttaga     4920

tggaaagact gtaaatgttt aatatgaata tagtgttctt ttgaagtaag gccagctgtt    4980

gaacggttaa actgtgcatt tctcatttg atgtgtcatg tatgttaatg tatgaaatga     5040

ttaaataaaa tcaaaactgg tacctgttta tccataaaaa aaaaaaaaaa aaaaaaaaaa    5100

aaaaaaaaaa g                                                         5111


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<211>    665
<212>    PRT
<213>    HOMO SAPIENS

<400>    42

Met Ala His Glu Met Ile Gly Thr Gln Ile Val Thr Glu Arg Leu Val
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Ala Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp Ser Arg
                20                  25                  30

Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile Asn Ile
            35                  40                  45

Asn Cys Ser Lys Leu Met Lys Arg Arg Leu Gln Gln Asp Lys Val Leu
        50                  55                  60

Ile Thr Glu Leu Ile Gln His Ser Ala Lys His Lys Val Asp Ile Asp
65                  70                  75                  80

Cys Ser Gln Lys Val Val Val Tyr Asp Gln Ser Ser Gln Asp Val Ala
                85                  90                  95

Ser Leu Ser Ser Asp Cys Phe Leu Thr Val Leu Leu Gly Lys Leu Glu
            100                 105                 110

Lys Ser Phe Asn Ser Val His Leu Leu Ala Gly Gly Phe Ala Glu Phe
        115                 120                 125


                                44
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```
Ser Arg Cys Phe Pro Gly Leu Cys Glu Gly Lys Ser Thr Leu Val Pro
    130             135             140

Thr Cys Ile Ser Gln Pro Cys Leu Pro Val Ala Asn Ile Gly Pro Thr
145             150             155             160

Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp Val Leu Asn
            165             170             175

Lys Glu Leu Met Gln Gln Asn Gly Ile Gly Tyr Val Leu Asn Ala Ser
        180             185             190

Asn Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His Phe Leu Arg
        195             200             205

Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro Trp Leu Asp
    210             215             220

Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn Gly Cys Val
225             230             235             240

Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile
            245             250             255

Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu Ala Tyr Arg
        260             265             270

Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Asn Phe Asn Phe Leu
        275             280             285

Gly Gln Leu Leu Ala Tyr Glu Lys Lys Ile Lys Asn Gln Thr Gly Ala
    290             295             300

Ser Gly Pro Lys Ser Lys Leu Lys Leu Leu Pro Leu Glu Lys Pro Asn
305             310             315             320

Glu Pro Val Pro Ala Val Ser Glu Gly Gly Gln Lys Ser Glu Thr Pro
            325             330             335

Leu Ser Pro Pro Cys Ala Asp Ser Ala Thr Ser Glu Ala Ala Gly Gln
            340             345             350

Arg Pro Val His Pro Ala Ser Val Pro Ser Val Pro Ser Val Gln Pro
        355             360             365

Ser Leu Leu Glu Asp Ser Pro Leu Val Gln Ala Leu Ser Gly Leu His
    370             375             380

Leu Ser Ala Asp Arg Leu Glu Asp Ser Asn Lys Leu Lys Arg Ser Phe
385             390             395             400

Ser Leu Asp Ile Lys Ser Val Ser Tyr Ser Ala Ser Met Ala Ala Ser
            405             410             415

Leu His Gly Phe Ser Ser Ser Glu Asp Ala Leu Glu Tyr Tyr Lys Pro
            420             425             430

Ser Thr Thr Leu Asp Gly Thr Asn Lys Leu Cys Gln Phe Ser Pro Val
        435             440             445

Gln Glu Leu Ser Glu Gln Thr Pro Glu Thr Ser Pro Asp Lys Glu Glu
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Ala Ser Ile Pro Lys Lys Leu Gln Thr Ala Arg Pro Ser Asp Ser Gln
465                 470                 475                 480

Ser Lys Arg Leu His Ser Val Arg Thr Ser Ser Ser Gly Thr Ala Gln
                485                 490                 495

Arg Ser Leu Leu Ser Pro Leu His Arg Ser Gly Ser Val Glu Asp Asn
            500                 505                 510

Tyr His Thr Ser Phe Leu Phe Gly Leu Ser Thr Ser Gln Gln His Leu
            515                 520                 525

Thr Lys Ser Ala Gly Leu Gly Leu Lys Gly Trp His Ser Asp Ile Leu
            530                 535                 540

Ala Pro Gln Thr Ser Thr Pro Ser Leu Thr Ser Ser Trp Tyr Phe Ala
545                 550                 555                 560

Thr Glu Ser Ser His Phe Tyr Ser Ala Ser Ala Ile Tyr Gly Gly Ser
                565                 570                 575

Ala Ser Tyr Ser Ala Tyr Ser Cys Ser Gln Leu Pro Thr Cys Gly Asp
            580                 585                 590

Gln Val Tyr Ser Val Arg Arg Arg Gln Lys Pro Ser Asp Arg Ala Asp
            595                 600                 605

Ser Arg Arg Ser Trp His Glu Glu Ser Pro Phe Glu Lys Gln Phe Lys
        610                 615                 620

Arg Arg Ser Cys Gln Met Glu Phe Gly Glu Ser Ile Met Ser Glu Asn
625                 630                 635                 640

Arg Ser Arg Glu Glu Leu Gly Lys Val Gly Ser Gln Ser Ser Phe Ser
                645                 650                 655

Gly Ser Met Glu Ile Ile Glu Val Ser
                660                 665
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<213>  HOMO SAPIENS

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<210>  44
<211>  18
<212>  DNA
<213>  HOMO SAPIENS

<400>  44
ctgttcgacc aagccctg                                                18


<210>  45
<211>  80
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<213>   HOMO SAPIENS

<400>   45
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aggatagtag taagagacgc                                                     80


<210>   46
<211>   20
<212>   DNA
<213>   HOMO SAPIENS

<400>   46
ttcggatgga aggattatgg                                                     20


<210>   47
<211>   18
<212>   DNA
<213>   HOMO SAPIENS

<400>   47
ctgttcgacc aagccctg                                                       18


<210>   48
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<212>   DNA
<213>   HOMO SAPIENS

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aggatagtag taagagacgc                                                     80


<210>   49
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<213>   HOMO SAPIENS

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ccaacttctc ctgggtgct                                                      19


<210>   50
<211>   18
<212>   DNA
<213>   HOMO SAPIENS

<400>   50
ctccgtcagg gacaccag                                                       18


<210>   51
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tcccgccagc cggcccgga                                                   79


<210>  52
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<213>  HOMO SAPIENS

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caacttctcc tgggtgcttc                                                  20


<210>  53
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<400>  53
cagctgtcgc tgtgaggg                                                    18


<210>  54
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ctccgtcagg gacaccaggt gccgcacgcc caggtccaac aggaactggt agtgggcggg      60

gagccgcggc agcgccagtc                                                  80


<210>  55
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ctccctgctt ctgtggacat                                                  20


<210>  56
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<213>  HOMO SAPIENS

<400>  56
aacctggatg cttcccttct                                                  20


<210>  57
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<212>  DNA
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<400>  57
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ttaagttcct gtaagaatct                                                    80


<210>  58
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tgcttctgtg gacattgcat                                                    20


<210>  59
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<213>  HOMO SAPIENS

<400>  59
aacctggatg cttcccttct                                                    20


<210>  60
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<212>  DNA
<213>  HOMO SAPIENS

<400>  60
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ttaagttcct gtaagaatct                                                    80


<210>  61
<211>  20
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<213>  HOMO SAPIENS

<400>  61
ggcagaacta tgaggccaag                                                    20


<210>  62
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<400>  62
gaccctggag tggtcatagg                                                    20


<210>  63
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<212>  DNA
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<400>  63
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cagcccagac tggaggctga                                                    80
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<210>   65
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<213>   HOMO SAPIENS

<400>   65
gaccctggag tggtcatagg                                               20


<210>   66
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<212>   DNA
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acaccaccaa gaactgttaa                                               80


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<212>   DNA
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<400>   67
atgggaccaa caagctatgc                                               20


<210>   68
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<213>   HOMO SAPIENS

<400>   68
ttatcaggac tggtttcggg                                               20


<210>   69
<211>   20
<212>   DNA
<213>   HOMO SAPIENS

<400>   69
ggccaaagag caaactcaag                                               20


<210>   70
<211>   20
<212>   DNA
<213>   HOMO SAPIENS
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<210>  71
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<212>  DNA
<213>  HOMO SAPIENS

<400>  71
aggcagaact atgaggccaa                                          20


<210>  72
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<400>  72
gaccctggag tggtcatagg                                          20


<210>  73
<211>  80
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<400>  73
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cagcccagac tggaggctga                                          80


<210>  74
<211>  80
<212>  DNA
<213>  HOMO SAPIENS

<400>  74
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aaagcctggt gcgcatgagc                                          80


<210>  75
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<213>  bacteriophage T7

<400>  75

Asp Tyr Lys Asp Asp Asp Asp Lys
1               5


<210>  76
<211>  733
<212>  DNA
<213>  homo sapiens

<400>  76
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tctcccggac tcctgaggtc acatgcgtgg tggtggacgt aagccacgaa gaccctgagg      180

tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg      240

aggagcagta caacagcacg taccgtgtgg tcagcgtcct caccgtcctg caccaggact      300

ggctgaatgg caaggagtac aagtgcaagg tctccaacaa agccctccca acccccatcg      360

agaaaaccat ctccaaagcc aaagggcagc cccgagaacc acaggtgtac accctgcccc      420

catcccggga tgagctgacc aagaaccagg tcagcctgac ctgcctggtc aaaggcttct      480

atccaagcga catcgccgtg gagtgggaga gcaatgggca gccggagaac aactacaaga      540

ccacgcctcc cgtgctggac tccgacggct ccttcttcct ctacagcaag ctcaccgtgg      600

acaagagcag gtggcagcag gggaacgtct tctcatgctc cgtgatgcat gaggctctgc      660

acaaccacta cacgcagaag agcctctccc tgtctccggg taaatgagtg cgacggccgc      720

gactctagag gat                                                         733
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<210>  77
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<212>  PRT
<213>  HOMO SAPIENS

<400>  77

Asp Tyr Ile Asn Ala Ser Asn
1               5


<210>  78
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<212>  PRT
<213>  HOMO SAPIENS

<220>
<221>  VARIANT
<222>  (2)..(2)
<223>  wherein 'Xaa' is any amino acid.


<220>
<221>  VARIANT
<222>  (3)..(3)
<223>  wherein 'Xaa' is any amino acid.


<400>  78

Cys Xaa Xaa Tyr Trp Pro
1               5

<210>  79
<211>  9
<212>  PRT
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52

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<213>  HOMO SAPIENS

<220>
<221>  Variant
<222>  (5)..(5)
<223>  wherein 'Xaa' is any amino acid.


<220>
<221>  Variant
<222>  (6)..(6)
<223>  wherein 'Xaa' is any amino acid.


<220>
<221>  Variant
<222>  (7)..(7)
<223>  wherein 'Xaa' is any amino acid.


<220>
<221>  Variant
<222>  (8)..(8)
<223>  wherein 'Xaa' is any amino acid.


<400>  79

Ile Val Val Met Xaa Xaa Xaa Xaa Glu
1               5

<210>  80
<211>  8
<212>  PRT
<213>  HOMO SAPIENS

<400>  80

Asp Asn Tyr Ile Asn Ala Ser Asn
1               5

<210>  81
<211>  6
<212>  PRT
<213>  HOMO SAPIENS

<220>
<221>  Variant
<222>  (2)..(2)
<223>  wherein 'Xaa' is any amino acid.


<220>
<221>  Variant
<222>  (3)..(3)
<223>  wherein 'Xaa' is any amino acid.


<400>  81

Cys Xaa Xaa Tyr Trp Pro
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<210> 82
<211> 9
<212> PRT
<213> HOMO SAPIENS

<220>
<221> Variant
<222> (5)..(5)
<223> wherein 'Xaa' is any amino acid.

<220>
<221> Variant
<222> (6)..(6)
<223> wherein 'Xaa' is any amino acid.

<220>
<221> Variant
<222> (7)..(7)
<223> wherein 'Xaa' is any amino acid.

<220>
<221> Variant
<222> (8)..(8)
<223> wherein 'Xaa' is any amino acid.

<400> 82

Ile Val Val Met Xaa Xaa Xaa Xaa Glu
1   5

<210> 83
<211> 511
<212> DNA
<213> homo sapiens

<400> 83

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attacacaca acccaaccaa tacctacttt aatagattct tacaggaact taagcaggat     120

ggagttacca ccatagtaag agtatgaaaa gcaacttaca acattgctct tttagagaag     180

ggaagcatcc aggttccgga ctggcctttt gatgatggta cagcaccatc cagccagata     240

attgataact ggttaaaact tatgaaaaat aaatttcatg aagatcctgg ttgttgtatt     300

gcaattcact gtgttgtagg ttttgggtga gctccagttg ctagttgccc tagctttaat     360

tgaaggtgga atgaaatatg aaaatgtagt acagttcatc agataaaagt gacatggaac     420

tttttaacagc aaacaacttt tgtatttgga gaaatattgt cttaaaatat gcttgcacct     480

cagaaatccc agaaataact gtttccttca g                                     511
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<210> 84
<211> 167
<212> PRT
<213> homo sapiens

<400> 84

Met Ala Arg Met Asn Leu Pro Ala Ser Val Asp Ile Ala Tyr Lys Asn
1   5   10   15

Val Arg Phe Leu Ile Thr His Asn Pro Thr Asn Thr Tyr Phe Asn Arg
            20   25   30

Phe Leu Gln Glu Leu Lys Gln Asp Gly Val Thr Thr Ile Val Arg Val
        35   40   45

Lys Ala Thr Tyr Asn Ile Ala Leu Leu Glu Lys Gly Ser Ile Gln Val
    50   55   60

Pro Asp Trp Pro Phe Asp Asp Gly Thr Ala Pro Ser Ser Gln Ile Ile
65   70   75   80

Asp Asn Trp Leu Lys Leu Met Lys Asn Lys Phe His Glu Asp Pro Gly
            85   90   95

Cys Cys Ile Ala Ile His Cys Val Val Gly Phe Gly Glu Leu Gln Leu
            100   105   110

Leu Val Ala Leu Ala Leu Ile Glu Gly Gly Met Lys Tyr Glu Asn Val
        115   120   125

Val Gln Phe Ile Arg Lys His Gly Thr Phe Asn Ser Lys Gln Leu Leu
    130   135   140

Tyr Leu Glu Lys Tyr Cys Leu Lys Ile Cys Leu His Leu Arg Asn Pro
145   150   155   160

Arg Asn Asn Cys Phe Leu Gln
                165

<210> 85
<211> 14
<212> PRT
<213> homo sapiens

<400> 85

Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile
1   5   10

<210> 86
<211> 14
<212> PRT
<213> homo sapiens

<400> 86

Glu Ala Ile Asn Ile Asn Cys Ser Lys Leu Met Lys Arg Arg
1   5   10

<210> 87

<210> 87
<211> 14
<212> PRT
<213> homo sapiens

<400> 87

Ile Gly Tyr Val Leu Asn Ala Ser Asn Thr Cys Pro Lys Pro
1   5   10

<210> 88
<211> 14
<212> PRT
<213> homo sapiens

<400> 88

Leu Arg Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu
1   5   10

<210> 89
<211> 14
<212> PRT
<213> homo sapiens

<400> 89

Glu Lys Lys Ile Lys Asn Gln Thr Gly Ala Ser Gly Pro Lys
1   5   10

<210> 90
<211> 14
<212> PRT
<213> homo sapiens

<400> 90

Ser Ile Met Ser Glu Asn Arg Ser Arg Glu Glu Leu Gly Lys
1   5   10

<210> 91
<211> 13
<212> PRT
<213> homo sapiens

<400> 91

Gly Thr Gln Ile Val Thr Glu Arg Leu Val Ala Leu Leu
1   5   10

<210> 92
<211> 13
<212> PRT
<213> homo sapiens

<400> 92

Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp
1   5   10

<210> 93
<211> 13

<212> PRT
<213> homo sapiens

<400> 93

Glu Leu Ile Gln His Ser Ala Lys His Lys Val Asp Ile
1   5   10

<210> 94
<211> 13
<212> PRT
<213> homo sapiens

<400> 94

Val Asp Ile Asp Cys Ser Gln Lys Val Val Val Tyr Asp
1   5   10

<210> 95
<211> 13
<212> PRT
<213> homo sapiens

<400> 95

Asp Arg Leu Glu Asp Ser Asn Lys Leu Lys Arg Ser Phe
1   5   10

<210> 96
<211> 13
<212> PRT
<213> homo sapiens

<400> 96

Thr Thr Leu Asp Gly Thr Asn Lys Leu Cys Gln Phe Ser
1   5   10

<210> 97
<211> 13
<212> PRT
<213> homo sapiens

<400> 97

Pro Lys Lys Leu Gln Thr Ala Arg Pro Ser Asp Ser Gln
1   5   10

<210> 98
<211> 13
<212> PRT
<213> homo sapiens

<400> 98

Pro Ser Asp Ser Gln Ser Lys Arg Leu His Ser Val Arg
1   5   10

<210> 99
<211> 13
<212> PRT

<213> homo sapiens

<400> 99

Ser Lys Arg Leu His Ser Val Arg Thr Ser Ser Ser Gly
1   5   10

<210> 100
<211> 13
<212> PRT
<213> homo sapiens

<400> 100

Gly Asp Gln Val Tyr Ser Val Arg Arg Arg Gln Lys Pro
1   5   10

<210> 101
<211> 13
<212> PRT
<213> homo sapiens

<400> 101

Arg Arg Gln Lys Pro Ser Asp Arg Ala Asp Ser Arg Arg
1   5   10

<210> 102
<211> 13
<212> PRT
<213> homo sapiens

<400> 102

Ser Asp Arg Ala Asp Ser Arg Arg Ser Trp His Glu Glu
1   5   10

<210> 103
<211> 23
<212> PRT
<213> homo sapiens

<400> 103

Asn Gly Cys Val Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala
1   5   10   15

Thr Ile Ala Ile Ala Tyr Ile
                20

<210> 104
<211> 39
<212> DNA
<213> Homo sapiens

<400> 104
gcagcagcgg ccgcatcgcc tacatcatga agaggatgg   39

<210> 105
<211> 37

58

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<212>   DNA
<213>   Homo sapiens

<400>   105
gcagcagtcg acggagacct caatgatttc catgctg                               37


<210>   106
<211>   39
<212>   DNA
<213>   Homo sapiens

<400>   106
gcagcagcgg ccgcatggcc catgagatga ttggaactc                            39


<210>   107
<211>   37
<212>   DNA
<213>   Homo sapiens

<400>   107
gcagcagtcg acctgcacgc tgggcacgct gggcacg                               37


<210>   108
<211>   5450
<212>   DNA
<213>   Homo sapiens

<220>
<221>   CDS
<222>   (538)..(2532)

<400>   108
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tcggctccgc ggcgcgcgcct cgcaagtccg ggaggcgagg ggggcccgag gggagacgcg    120

gtgacaactt tcgtttccct ctgagggaat tgggaggtcg cggcgcccaa aagctttcag     180

tccagtgtaa agctgttgga gcgcgggagc aaaggtaaag aatgatgtaa tgcgctggct     240

gctccaaagc atcttttgtt gtggaatggt tattccagtc atctctttat gaatcaaatg     300

tgaggggctg ctttgtggac ggagtccttt gcaagagcac atcaacggga aagagaaaga     360

gacattcact tggagggctc ttgctgaaaa tgggtttaac tctccttttg ccagtcacca     420

ccagcctgac ctcatacact tttagtacaa tggagtggct gagcctttga gcacaccacc     480

attacatcat cgtggcaaat taaagaagga ggtgggaaaa gaggacttat tgttgtc       537

atg gcc cat gag atg att gga act caa att gtt act gag agg ttg gtg       585
Met Ala His Glu Met Ile Gly Thr Gln Ile Val Thr Glu Arg Leu Val
1               5                   10                  15

gct ctg ctg gaa agt gga acg gaa aaa gtg ctg cta att gat agc cgg      633
Ala Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp Ser Arg
            20                  25                  30
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59

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cca ttt gtg gaa tac aat aca tcc cac att ttg gaa gcc att aat atc        681
Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile Asn Ile
    35                      40                  45

aac tgc tcc aag ctt atg aag cga agg ttg caa cag gac aaa gtg tta        729
Asn Cys Ser Lys Leu Met Lys Arg Arg Leu Gln Gln Asp Lys Val Leu
    50                      55                  60

att aca gag ctc atc cag cat tca gcg aaa cat aag gtt gac att gat        777
Ile Thr Glu Leu Ile Gln His Ser Ala Lys His Lys Val Asp Ile Asp
65                      70                  75                  80

tgc agt cag aag gtt gta gtt tac gat caa agc tcc caa gat gtt gcc        825
Cys Ser Gln Lys Val Val Val Tyr Asp Gln Ser Ser Gln Asp Val Ala
                    85                  90                  95

tct ctc tct tca gac tgt ttt ctc act gta ctt ctg ggt aaa ctg gag        873
Ser Leu Ser Ser Asp Cys Phe Leu Thr Val Leu Leu Gly Lys Leu Glu
                100                 105                 110

aag agc ttc aac tct gtt cac ctg ctt gca ggt ggg ttt gct gag ttc        921
Lys Ser Phe Asn Ser Val His Leu Leu Ala Gly Gly Phe Ala Glu Phe
            115                 120                 125

tct cgt tgt ttc cct ggc ctc tgt gaa gga aaa tcc act cta gtc cct        969
Ser Arg Cys Phe Pro Gly Leu Cys Glu Gly Lys Ser Thr Leu Val Pro
            130                 135                 140

acc tgc att tct cag cct tgc tta cct gtt gcc aac att ggg cca acc       1017
Thr Cys Ile Ser Gln Pro Cys Leu Pro Val Ala Asn Ile Gly Pro Thr
145                 150                 155                 160

cga att ctt ccc aat ctt tat ctt ggc tgc cag cga gat gtc ctc aac       1065
Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp Val Leu Asn
                    165                 170                 175

aag gag ctg ata cag cag aat ggg att ggt tat gtg tta aat gcc agc       1113
Lys Glu Leu Ile Gln Gln Asn Gly Ile Gly Tyr Val Leu Asn Ala Ser
                180                 185                 190

tat acc tgt cca aag cct gac ttt atc ccc gag tct cat ttc ctg cgt       1161
Tyr Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His Phe Leu Arg
            195                 200                 205

gtg cct gtg aat gac agc ttt tgt gag aaa att ttg ccg tgg ttg gac       1209
Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro Trp Leu Asp
    210                 215                 220

aaa tca gta gat ttc att gag aaa gca aaa gcc tcc aat gga tgt gtt       1257
Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn Gly Cys Val
225                 230                 235                 240

cta gtg cac tgt tta gct ggg atc tcc cgc tcc gcc acc atc gct atc       1305
Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile
                    245                 250                 255

gcc tac atc atg aag agg atg gac atg tct tta gat gaa gct tac aga       1353
Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu Ala Tyr Arg
                260                 265                 270

ttt gtg aaa gaa aaa aga cct act ata tct cca aac ttc aat ttt ctg       1401
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60

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Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Asn Phe Asn Phe Leu
    275                 280                 285

ggc caa ctc ctg gac tat gag aag aag att aag aac cag act gga gca    1449
Gly Gln Leu Leu Asp Tyr Glu Lys Lys Ile Lys Asn Gln Thr Gly Ala
    290                 295                 300

tca ggg cca aag agc aaa ctc aag ctg ctg cac ctg gag aag cca aat    1497
Ser Gly Pro Lys Ser Lys Leu Lys Leu Leu His Leu Glu Lys Pro Asn
305                 310                 315                 320

gaa cct gtc cct gct gtc tca gag ggt gga cag aaa agc gag acg ccc    1545
Glu Pro Val Pro Ala Val Ser Glu Gly Gly Gln Lys Ser Glu Thr Pro
                325                 330                 335

ctc agt cca ccc tgt gcc gac tct gct acc tca gag gca gca gga caa    1593
Leu Ser Pro Pro Cys Ala Asp Ser Ala Thr Ser Glu Ala Ala Gly Gln
                340                 345                 350

agg ccc gtg cat ccc gcc agc gtg ccc agc gtg ccc agc gtg cag ccg    1641
Arg Pro Val His Pro Ala Ser Val Pro Ser Val Pro Ser Val Gln Pro
                355                 360                 365

tcg ctg tta gag gac agc ccg ctg gta cag gcg ctc agt ggg ctg cac    1689
Ser Leu Leu Glu Asp Ser Pro Leu Val Gln Ala Leu Ser Gly Leu His
    370                 375                 380

ctg tcc gca gac agg ctg gaa gac agc aat aag ctc aag cgt tcc ttc    1737
Leu Ser Ala Asp Arg Leu Glu Asp Ser Asn Lys Leu Lys Arg Ser Phe
385                 390                 395                 400

tct ctg gat atc aaa tca gtt tca tat tca gcc agc atg gca gca tcc    1785
Ser Leu Asp Ile Lys Ser Val Ser Tyr Ser Ala Ser Met Ala Ala Ser
                405                 410                 415

tta cat ggc ttc tcc tca tca gaa gat gct ttg gaa tac tac aaa cct    1833
Leu His Gly Phe Ser Ser Ser Glu Asp Ala Leu Glu Tyr Tyr Lys Pro
                420                 425                 430

tcc act act ctg gat ggg acc aac aag cta tgc cag ttc tcc cct gtt    1881
Ser Thr Thr Leu Asp Gly Thr Asn Lys Leu Cys Gln Phe Ser Pro Val
                435                 440                 445

cag gaa cta tcg gag cag act ccc gaa acc agt cct gat aag gag gaa    1929
Gln Glu Leu Ser Glu Gln Thr Pro Glu Thr Ser Pro Asp Lys Glu Glu
    450                 455                 460

gcc agc atc ccc aag aag ctg cag acc gcc agg cct tca gac agc cag    1977
Ala Ser Ile Pro Lys Lys Leu Gln Thr Ala Arg Pro Ser Asp Ser Gln
465                 470                 475                 480

agc aag cga ttg cat tcg gtc aga acc agc agt agt ggc acc gcc cag    2025
Ser Lys Arg Leu His Ser Val Arg Thr Ser Ser Ser Gly Thr Ala Gln
                485                 490                 495

agg tcc ctt tta tct cca ctg cat cga agt ggg agc gtg gag gac aat    2073
Arg Ser Leu Leu Ser Pro Leu His Arg Ser Gly Ser Val Glu Asp Asn
                500                 505                 510

tac cac acc agc ttc ctt ttc ggc ctt tcc acc agc cag cag cac ctc    2121
Tyr His Thr Ser Phe Leu Phe Gly Leu Ser Thr Ser Gln Gln His Leu
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61

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              515                    520                    525
acg aag tct gct ggc ctg ggc ctt aag ggc tgg cac tcg gat atc ttg    2169
Thr Lys Ser Ala Gly Leu Gly Leu Lys Gly Trp His Ser Asp Ile Leu
        530                    535                    540

gcc ccc cag acc tct acc cct tcc ctg acc agc agc tgg tat ttt gcc    2217
Ala Pro Gln Thr Ser Thr Pro Ser Leu Thr Ser Ser Trp Tyr Phe Ala
545                    550                    555                    560

aca gag tcc tca cac ttc tac tct gcc tca gcc atc tac gga ggc agt    2265
Thr Glu Ser Ser His Phe Tyr Ser Ala Ser Ala Ile Tyr Gly Gly Ser
                       565                    570                    575

gcc agt tac tct gcc tac agc tgc agc cag ctg ccc act tgc gga gac    2313
Ala Ser Tyr Ser Ala Tyr Ser Cys Ser Gln Leu Pro Thr Cys Gly Asp
                  580                    585                    590

caa gtc tat tct gtg cgc agg cgg cag aag cca agt gac aga gct gac    2361
Gln Val Tyr Ser Val Arg Arg Arg Gln Lys Pro Ser Asp Arg Ala Asp
        595                    600                    605

tcg cgg cgg agc tgg cat gaa gag agc agc ccc ttt gaa aag cag ttt aaa    2409
Ser Arg Arg Ser Trp His Glu Glu Ser Ser Pro Phe Glu Lys Gln Phe Lys
        610                    615                    620

cgc aga agc tgc caa atg gaa ttt gga gag agc atc atg tca gag aac    2457
Arg Arg Ser Cys Gln Met Glu Phe Gly Glu Ser Ile Met Ser Glu Asn
625                    630                    635                    640

agg tca cgg gaa gag ctg ggg aaa gtg ggc agt cag tct agc ttt tcg    2505
Arg Ser Arg Glu Glu Leu Gly Lys Val Gly Ser Gln Ser Ser Phe Ser
                  645                    650                    655

ggc agc atg gaa atc att gag gtc tcc tgagaagaaa gacacttgtg    2552
Gly Ser Met Glu Ile Ile Glu Val Ser
                  660                    665

acttctatag acaatttttt ttttcttgtt cacaaaaaaa ttccctgtaa atctgaaata    2612

tatatatgta catacatata tatttttgga aaatggagct atggtgtaaa agcaacaggt    2672

ggatcaaccc agttgttact ctcttaacat ctgcatttga gagatcagct aatacttctc    2732

tcaacaaaaa tggaagggca gatgctagaa tcccccctag acggaggaaa accattttat    2792

tcagtgaatt acacatcctc ttgttcttaa aaaagcaagt gtctttggtg ttggaggaca    2852

aaatccccta ccattttcac gttgtgctac taagagatct caaatattag tctttgtccg    2912

gacccttcca tagtacacct tagcgctgag actgagccag cttgggggtc aggtaggtag    2972

accctgttag ggacagagcc tagtggtaaa tccaagagaa atgatcctat ccaaagctga    3032

ttcacaaacc cacgctcacc tgacagccga gggacacgag catcactctg ctggacggac    3092

cattaggggc cttgccaagg tctaccttag agcaaaccca gtacctcaga caggaaagtc    3152

ggggctttga ccactaccat atctggtagc ccattttcta ggcattgtga ataggtaggt    3212

agctagtcac acttttcaga ccaattcaaa ctgtctatgc acaaaattcc cgtgggccta    3272
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gatggagata attttttttt cttctcagct ttatgaagag aagggaaact gtctaggatt   3332
cagctgaacc accaggaacc tggcaacatc acgatttaag ctaaggttgg gaggctaacg   3392
agtctacctc cctctttgta aatcaaagaa ttgtttaaaa tgggattgtc aatcctttaa   3452
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agcaccttca aattctcagc caaagcagat gtttttgccc tttctgcttc actgcatgga   3572
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acaacagcag ctttttgggg gtgggggctgg gcgggtgttg tcattgttct ttcccttcct   4172
gtaagtgtcg ctagttgctg cctcgtatct caggtttttc tctgtttttg agaaatggac   4232
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cacacaccaa atgtgtaaca gttcaccact tccagagtgt ggtcatgccc aaaacatgtt   4592
taagaaagga aagcagtagc tccttgctaa cgatgtttca ggaggtttgg ggcacttggt   4652
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gtgatgtagt cacatcctac agcctttagt gctggttcac tagtgtcaga taatcagttc   4772
ttggaatcga gactgccgtg gcgaaggggt ggcctcggag gcaggctctg gagctgcttg   4832
gatgtcttta ggtgggtgg tggctggctc tcttcagcat gtaattgggg aaaccctcgc   4892
gtctactagg ggtgatacag atggtgattt taaagagcaa aactagactt ctatgtgaga   4952
agtgctggaa aatgatttag gacatgtgta aagttagatg gaaagactgt aaatgtttaa   5012
tatgaatata gtgttctttt gaagtaaggc cagctgttga acggttaaac tgtgcatttc   5072
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63

tcattttgat gtgtcatgta tgttaatgta tgaaatgatt aaataaaatc aaaactggta   5132

cctgttata cataaatacg agaaaagacc tatctttgca gccataaact cggtgggaac   5192

accaccactc aagttgccaa aggaggcagt ggtgaaacct gtcctgttct cacttaaatg   5252

aggatttagc tcaaaataaa gtggtggtgt catcaggttt attccgtgtt ctgtcattca   5312

catggaacac cggatgatta gctaacagtt tagtgccagc cttcattctt tactgtgtac   5372

gttaaatgca cactacagtg aaaaagccta agacacttgg taaatatttt ctagctgact   5432

gattccagaa cacacaag   5450

<210> 109
<211> 665
<212> PRT
<213> Homo sapiens

<400> 109

Met Ala His Glu Met Ile Gly Thr Gln Ile Val Thr Glu Arg Leu Val
1   5   10   15

Ala Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp Ser Arg
                20   25   30

Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile Asn Ile
            35   40   45

Asn Cys Ser Lys Leu Met Lys Arg Arg Leu Gln Gln Asp Lys Val Leu
        50   55   60

Ile Thr Glu Leu Ile Gln His Ser Ala Lys His Lys Val Asp Ile Asp
65   70   75   80

Cys Ser Gln Lys Val Val Val Tyr Asp Gln Ser Ser Gln Asp Val Ala
                85   90   95

Ser Leu Ser Ser Asp Cys Phe Leu Thr Val Leu Leu Gly Lys Leu Glu
                100   105   110

Lys Ser Phe Asn Ser Val His Leu Leu Ala Gly Gly Phe Ala Glu Phe
            115   120   125

Ser Arg Cys Phe Pro Gly Leu Cys Glu Gly Lys Ser Thr Leu Val Pro
        130   135   140

Thr Cys Ile Ser Gln Pro Cys Leu Pro Val Ala Asn Ile Gly Pro Thr
145   150   155   160

64

```
Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp Val Leu Asn
            165                 170                     175

Lys Glu Leu Ile Gln Gln Asn Gly Ile Gly Tyr Val Leu Asn Ala Ser
            180                 185                 190

Tyr Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His Phe Leu Arg
            195                 200                 205

Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro Trp Leu Asp
    210                 215                 220

Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn Gly Cys Val
225                 230                 235                     240

Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile
            245                 250                 255

Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu Ala Tyr Arg
            260                 265                 270

Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Asn Phe Asn Phe Leu
            275                 280                 285

Gly Gln Leu Leu Asp Tyr Glu Lys Lys Ile Lys Asn Gln Thr Gly Ala
    290                 295                 300

Ser Gly Pro Lys Ser Lys Leu Lys Leu Leu His Leu Glu Lys Pro Asn
305                 310                 315                     320

Glu Pro Val Pro Ala Val Ser Glu Gly Gly Gln Lys Ser Glu Thr Pro
            325                 330                 335

Leu Ser Pro Pro Cys Ala Asp Ser Ala Thr Ser Glu Ala Ala Gly Gln
            340                 345                 350

Arg Pro Val His Pro Ala Ser Val Pro Ser Val Pro Ser Val Gln Pro
            355                 360                 365

Ser Leu Leu Glu Asp Ser Pro Leu Val Gln Ala Leu Ser Gly Leu His
    370                 375                 380

Leu Ser Ala Asp Arg Leu Glu Asp Ser Asn Lys Leu Lys Arg Ser Phe
385                 390                 395                     400
```

```
Ser Leu Asp Ile Lys Ser Val Ser Tyr Ser Ala Ser Met Ala Ala Ser
              405             410                 415

Leu His Gly Phe Ser Ser Ser Glu Asp Ala Leu Glu Tyr Tyr Lys Pro
            420             425             430

Ser Thr Thr Leu Asp Gly Thr Asn Lys Leu Cys Gln Phe Ser Pro Val
            435             440             445

Gln Glu Leu Ser Glu Gln Thr Pro Glu Thr Ser Pro Asp Lys Glu Glu
        450             455             460

Ala Ser Ile Pro Lys Lys Leu Gln Thr Ala Arg Pro Ser Asp Ser Gln
465             470             475             480

Ser Lys Arg Leu His Ser Val Arg Thr Ser Ser Ser Gly Thr Ala Gln
            485             490             495

Arg Ser Leu Leu Ser Pro Leu His Arg Ser Gly Ser Val Glu Asp Asn
        500             505             510

Tyr His Thr Ser Phe Leu Phe Gly Leu Ser Thr Ser Gln Gln His Leu
        515             520             525

Thr Lys Ser Ala Gly Leu Gly Leu Lys Gly Trp His Ser Asp Ile Leu
        530             535             540

Ala Pro Gln Thr Ser Thr Pro Ser Leu Thr Ser Ser Trp Tyr Phe Ala
545             550             555             560

Thr Glu Ser Ser His Phe Tyr Ser Ala Ser Ala Ile Tyr Gly Gly Ser
            565             570             575

Ala Ser Tyr Ser Ala Tyr Ser Cys Ser Gln Leu Pro Thr Cys Gly Asp
            580             585             590

Gln Val Tyr Ser Val Arg Arg Gln Lys Pro Ser Asp Arg Ala Asp
        595             600             605

Ser Arg Arg Ser Trp His Glu Glu Ser Pro Phe Glu Lys Gln Phe Lys
        610             615             620

Arg Arg Ser Cys Gln Met Glu Phe Gly Glu Ser Ile Met Ser Glu Asn
625             630             635             640

Arg Ser Arg Glu Glu Leu Gly Lys Val Gly Ser Gln Ser Ser Phe Ser
```

```
Gly Ser Met Glu Ile Ile Glu Val Ser
          660                 665
```

```
<210>  110
<211>  625
<212>  PRT
<213>  Homo sapiens
```

```
<400>  110
```

```
Met Ala Gly Asp Arg Leu Pro Arg Lys Val Met Asp Ala Lys Lys Leu
1               5                   10                  15

Ala Ser Leu Leu Arg Gly Gly Pro Gly Gly Pro Leu Val Ile Asp Ser
            20                  25                  30

Arg Ser Phe Val Glu Tyr Asn Ser Trp His Val Leu Ser Ser Val Asn
        35                  40                  45

Ile Cys Cys Ser Lys Leu Val Lys Arg Arg Leu Gln Gln Gly Lys Val
    50                  55                  60

Thr Ile Ala Glu Leu Ile Gln Pro Ala Ala Arg Ser Gln Val Glu Ala
65              70                  75                  80

Thr Glu Pro Gln Asp Val Val Val Tyr Asp Gln Ser Thr Arg Asp Ala
            85                  90                  95

Ser Val Leu Ala Ala Asp Ser Phe Leu Ser Ile Leu Leu Ser Lys Leu
        100                 105                 110

Asp Gly Cys Phe Asp Ser Val Ala Ile Leu Thr Gly Gly Phe Ala Thr
        115                 120                 125

Phe Ser Ser Cys Phe Pro Gly Leu Cys Glu Gly Lys Pro Ala Ala Leu
    130                 135                 140

Leu Pro Met Ser Leu Ser Gln Pro Cys Leu Pro Val Pro Ser Val Gly
145             150                 155                 160

Leu Thr Arg Ile Leu Pro His Leu Tyr Leu Gly Ser Gln Lys Asp Val
            165                 170                 175

Leu Asn Lys Asp Leu Met Thr Gln Asn Gly Ile Ser Tyr Val Leu Asn
        180                 185                 190

Ala Ser Asn Ser Cys Pro Lys Pro Asp Phe Ile Cys Glu Ser Arg Phe
    195                 200                 205

Met Arg Val Pro Ile Asn Asp Asn Tyr Cys Glu Lys Leu Leu Pro Trp
    210                 215                 220

Leu Asp Lys Ser Ile Glu Phe Ile Asp Lys Ala Lys Leu Ser Ser Cys
225                 230                 235                 240

Gln Val Ile Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile
            245                 250                 255
```

```
Ala Ile Ala Tyr Ile Met Lys Thr Met Gly Met Ser Ser Asp Asp Ala
            260                 265                 270

Tyr Arg Phe Val Lys Asp Arg Arg Pro Ser Ile Ser Pro Asn Phe Asn
            275                 280                 285

Phe Leu Gly Gln Leu Leu Glu Tyr Glu Arg Thr Leu Lys Leu Leu Ala
    290                 295                 300

Ala Leu Gln Gly Asp Pro Gly Thr Pro Ser Gly Thr Pro Glu Pro Pro
305                 310                 315                 320

Pro Ser Pro Ala Ala Gly Ala Pro Leu Pro Arg Leu Pro Pro Pro Thr
            325                 330                 335

Ser Glu Ser Ala Ala Thr Gly Asn Ala Ala Ala Arg Glu Gly Gly Leu
            340                 345                 350

Ser Ala Gly Gly Glu Pro Pro Ala Pro Pro Thr Pro Pro Ala Thr Ser
            355                 360                 365

Ala Leu Gln Gln Gly Leu Arg Gly Leu His Leu Ser Ser Asp Arg Leu
    370                 375                 380

Gln Asp Thr Asn Arg Leu Lys Arg Ser Phe Ser Leu Asp Ile Lys Ser
385                 390                 395                 400

Ala Tyr Ala Pro Ser Arg Arg Pro Asp Gly Pro Gly Pro Pro Asp Pro
            405                 410                 415

Gly Glu Ala Pro Lys Leu Cys Lys Leu Asp Ser Pro Ser Gly Ala Ala
            420                 425                 430

Leu Gly Leu Ser Ser Pro Ser Pro Asp Ser Pro Asp Ala Ala Pro Glu
            435                 440                 445

Ala Arg Pro Arg Pro Arg Arg Arg Pro Arg Pro Pro Ala Gly Ser Pro
    450                 455                 460

Ala Arg Ser Pro Ala His Ser Leu Gly Leu Asn Phe Gly Asp Ala Ala
465                 470                 475                 480

Arg Gln Thr Pro Arg His Gly Leu Ser Ala Leu Ser Ala Pro Gly Leu
            485                 490                 495

Pro Gly Pro Gly Gln Pro Ala Gly Pro Gly Ala Trp Ala Pro Pro Leu
            500                 505                 510

Asp Ser Pro Gly Thr Pro Ser Pro Asp Gly Pro Trp Cys Phe Ser Pro
            515                 520                 525

Glu Gly Ala Gln Gly Ala Gly Gly Val Leu Phe Ala Pro Phe Gly Arg
            530                 535                 540

Ala Gly Ala Pro Gly Pro Gly Gly Gly Ser Asp Leu Arg Arg Arg Glu
545                 550                 555                 560

Ala Ala Arg Ala Glu Pro Arg Asp Ala Arg Thr Gly Trp Pro Glu Glu
            565                 570                 575
```

```
Pro Ala Pro Glu Thr Gln Phe Lys Arg Arg Ser Cys Gln Met Glu Phe
            580                 585                 590

Glu Glu Gly Met Val Glu Gly Arg Ala Arg Gly Glu Glu Leu Ala Ala
            595                 600                 605

Leu Gly Lys Gln Ala Ser Phe Ser Gly Ser Val Glu Val Ile Glu Val
    610                 615                 620

Ser
625
```

<210> 111
<211> 381
<212> PRT
<213> Homo sapiens

<400> 111

```
Met Ile Asp Thr Leu Arg Pro Val Pro Phe Ala Ser Glu Met Ala Ile
1               5                   10                  15

Ser Lys Thr Val Ala Trp Leu Asn Glu Gln Leu Glu Leu Gly Asn Glu
            20                  25                  30

Arg Leu Leu Leu Met Asp Cys Arg Pro Gln Glu Leu Tyr Glu Ser Ser
        35                  40                  45

His Ile Glu Ser Ala Ile Asn Val Ala Ile Pro Gly Ile Met Leu Arg
    50                  55                  60

Arg Leu Gln Lys Gly Asn Leu Pro Val Arg Ala Leu Phe Thr Arg Gly
65                  70                  75                  80

Glu Asp Arg Asp Arg Phe Thr Arg Arg Cys Gly Thr Asp Thr Val Val
            85                  90                  95

Leu Tyr Asp Glu Ser Ser Ser Asp Trp Asn Glu Asn Thr Gly Gly Glu
            100                 105                 110

Ser Leu Leu Gly Leu Leu Leu Lys Lys Leu Lys Asp Glu Gly Cys Arg
            115                 120                 125

Ala Phe Tyr Leu Glu Gly Gly Phe Ser Lys Phe Gln Ala Glu Phe Ser
    130                 135                 140

Leu His Cys Glu Thr Asn Leu Asp Gly Ser Cys Ser Ser Ser Ser Pro
145                 150                 155                 160

Pro Leu Pro Val Leu Gly Leu Gly Gly Leu Arg Ile Ser Ser Asp Ser
            165                 170                 175

Ser Ser Asp Ile Glu Ser Asp Leu Asp Arg Asp Pro Asn Ser Ala Thr
            180                 185                 190

Asp Ser Asp Gly Ser Pro Leu Ser Asn Ser Gln Pro Ser Phe Pro Val
            195                 200                 205

Glu Ile Leu Pro Phe Leu Tyr Leu Gly Cys Ala Lys Asp Ser Thr Asn
    210                 215                 220
```

```
Leu Asp Val Leu Glu Glu Phe Gly Ile Lys Tyr Ile Leu Asn Val Thr
225                 230                 235                 240

Pro Asn Leu Pro Asn Leu Phe Glu Asn Ala Gly Glu Phe Lys Tyr Lys
                245                 250                 255

Gln Ile Pro Ile Ser Asp His Trp Ser Gln Asn Leu Ser Gln Phe Phe
                260                 265                 270

Pro Glu Ala Ile Ser Phe Ile Asp Glu Ala Arg Gly Lys Asn Cys Gly
        275                 280                 285

Val Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Val Thr Val Thr
        290                 295                 300

Val Ala Tyr Leu Met Gln Lys Leu Asn Leu Ser Met Asn Asp Ala Tyr
305                 310                 315                 320

Asp Ile Val Lys Met Lys Lys Ser Asn Ile Ser Pro Asn Phe Asn Phe
                325                 330                 335

Met Gly Gln Leu Leu Asp Phe Glu Arg Thr Leu Gly Leu Ser Ser Pro
            340                 345                 350

Cys Asp Asn Arg Val Pro Ala Gln Gln Leu Tyr Phe Thr Thr Pro Ser
        355                 360                 365

Asn Gln Asn Val Tyr Gln Val Asp Ser Leu Gln Ser Thr
    370                 375                 380

<210>   112
<211>   482
<212>   PRT
<213>   Homo sapiens

<400>   112

Met Pro Pro Ser Pro Leu Asp Asp Arg Val Val Val Ala Leu Ser Arg
1               5                   10                  15

Pro Val Arg Pro Gln Asp Leu Asn Leu Cys Leu Asp Ser Ser Tyr Leu
            20                  25                  30

Gly Ser Ala Asn Pro Gly Ser Asn Ser His Pro Pro Val Ile Ala Thr
        35                  40                  45

Thr Val Val Ser Leu Lys Ala Ala Asn Leu Thr Tyr Met Pro Ser Ser
    50                  55                  60

Ser Gly Ser Ala Arg Ser Leu Asn Cys Gly Cys Ser Ser Ala Ser Cys
65                  70                  75                  80

Cys Thr Val Ala Thr Tyr Asp Lys Asp Asn Gln Ala Gln Thr Gln Ala
                85                  90                  95

Ile Ala Ala Gly Thr Thr Thr Thr Ala Ile Gly Thr Ser Thr Thr Cys
        100                 105                 110

Pro Ala Asn Gln Met Val Asn Asn Asn Glu Asn Thr Gly Ser Leu Ser
        115                 120                 125
```

```
Pro Ser Ser Gly Val Gly Ser Pro Val Ser Gly Thr Pro Lys Gln Leu
    130             135             140

Ala Ser Ile Lys Ile Ile Tyr Pro Asn Asp Leu Ala Lys Lys Met Thr
145             150             155                 160

Lys Cys Ser Lys Ser His Leu Pro Ser Gln Gly Pro Val Ile Ile Asp
            165             170             175

Cys Arg Pro Phe Met Glu Tyr Asn Lys Ser His Ile Gln Gly Ala Val
        180             185             190

His Ile Asn Cys Ala Asp Lys Ile Ser Arg Arg Arg Leu Gln Gln Gly
    195             200             205

Lys Ile Thr Val Leu Asp Leu Ile Ser Cys Arg Glu Gly Lys Asp Ser
    210             215             220

Phe Lys Arg Ile Phe Ser Lys Glu Ile Ile Val Tyr Asp Glu Asn Thr
225             230             235             240

Asn Glu Pro Ser Arg Val Met Pro Ser Gln Pro Leu His Ile Val Leu
            245             250             255

Glu Ser Leu Lys Arg Glu Gly Lys Glu Pro Leu Val Leu Lys Gly Gly
    260             265             270

Leu Ser Ser Phe Lys Gln Asn His Glu Asn Leu Cys Asp Asn Ser Leu
    275             280             285

Gln Leu Gln Glu Cys Arg Glu Val Gly Gly Gly Ala Ser Ala Ala Ser
290             295             300

Ser Leu Leu Pro Gln Pro Ile Pro Thr Thr Pro Asp Ile Glu Asn Ala
305             310             315             320

Glu Leu Thr Pro Ile Leu Pro Phe Leu Phe Leu Gly Asn Glu Gln Asp
            325             330             335

Ala Gln Asp Leu Asp Thr Met Gln Arg Leu Asn Ile Gly Tyr Val Ile
            340             345             350

Asn Val Thr Thr His Leu Pro Leu Tyr His Tyr Glu Lys Gly Leu Phe
    355             360             365

Asn Tyr Lys Arg Leu Pro Ala Thr Asp Ser Asn Lys Gln Asn Leu Arg
    370             375             380

Gln Tyr Phe Glu Glu Ala Phe Glu Phe Ile Glu Glu Ala His Gln Cys
385             390             395             400

Gly Lys Gly Leu Leu Ile His Cys Gln Ala Gly Val Ser Arg Ser Ala
            405             410             415

Thr Ile Val Ile Ala Tyr Leu Met Lys His Thr Arg Met Thr Met Thr
            420             425             430

Asp Ala Tyr Lys Phe Val Lys Gly Lys Arg Pro Ile Ile Ser Pro Asn
            435             440             445

Leu Asn Phe Met Gly Gln Leu Leu Glu Phe Glu Glu Asp Leu Asn Asn
```

Gly Val Thr Pro Arg Ile Leu Thr Pro Lys Leu Met Gly Val Glu Thr
465   470   475   480

Val Val

<210>   113
<211>   2756
<212>   DNA
<213>   Mus musculus

<220>
<221>   CDS
<222>   (369)..(2348)

<400>   113
gactgaggtt gtcagcccag tgtaaagctg ttggagtgag ggcagaaagg taaaggatga   60

tgtaatgcct ggctgcccta gagcatcttt tgttgtggga tgggtattcc catcatctct   120

atgaatctag tgtgaggggc tgctttgtgg aaggaatcct ttgcaagagc atatcaacag   180

gaaagagaaa gagacattca gttggagggc tcttgctgaa atggatttaa ctctcctctt   240

gccagtcacc actagcctga cctcatacat ttttagtaca atggagtggc tgagcctttg   300

agcacacgac cattcacatca tcgtggcaaa ttaaagaacg aggtgggaa agaggactta   360

ttgttgtc atg gcc cat gag atg att gga act caa att gtt act gag agc   410
         Met Ala His Glu Met Ile Gly Thr Gln Ile Val Thr Glu Ser
          1   5   10

ttg gtg gct ctg ctg gaa agt gga acg gaa aaa gtg ctg cta att gat   458
Leu Val Ala Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp
15   20   25   30

agc cga cca ttt gtg gaa tac aat acg tct cac att ttg gaa gcc att   506
Ser Arg Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile
                35   40   45

aat atc aac tgc tcc aaa ctg atg aag cga agg ttg caa cag gac aaa   554
Asn Ile Asn Cys Ser Lys Leu Met Lys Arg Arg Leu Gln Gln Asp Lys
            50   55   60

gta tta att aca gaa cta atc cac caa tct aca aag cat aag gtt gac   602
Val Leu Ile Thr Glu Leu Ile His Gln Ser Thr Lys His Lys Val Asp
            65   70   75

att gac tgc aat caa aga gtg gta gtt tat gat cac agt tca caa gat   650
Ile Asp Cys Asn Gln Arg Val Val Val Tyr Asp His Ser Ser Gln Asp
        80   85   90

gtt ggt tct ctg tcg tca gac tgc ttt ctc act gta ctt ctg ggt aag   698
Val Gly Ser Leu Ser Ser Asp Cys Phe Leu Thr Val Leu Leu Gly Lys
95   100   105   110

ctg gag aga agc ttc aac tct gtc cac ctg ctt gca ggt ggc ttt gct   746
Leu Glu Arg Ser Phe Asn Ser Val His Leu Leu Ala Gly Gly Phe Ala
                115   120   125

```
gag ttc tct cgt tgt ttc cct ggc ctc tgt gaa gga aag tcc act cta      794
Glu Phe Ser Arg Cys Phe Pro Gly Leu Cys Glu Gly Lys Ser Thr Leu
              130                 135                 140

gtc cct acc tgc ata tct cag cct tgc tta cct gtt gcg aac att ggg      842
Val Pro Thr Cys Ile Ser Gln Pro Cys Leu Pro Val Ala Asn Ile Gly
              145                 155

cca act cga att ctt ccc aat ctc tat ctt ggc tgc cag cga gat gtc      890
Pro Thr Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp Val
          160                 165                 170

ctc aac aag gac ctg atg caa cag aat ggg att ggc tat gtg tta aat      938
Leu Asn Lys Asp Leu Met Gln Gln Asn Gly Ile Gly Tyr Val Leu Asn
175                 180                 185                 190

gcc agc aat acc tgt cca aag cct gac ttc ata cct gaa tct cac ttc      986
Ala Ser Asn Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His Phe
                  195                 200                 205

ctg cga gtg cct gtg aat gac agc ttt tgt gag aaa atc cta cca tgg     1034
Leu Arg Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro Trp
              210                 215                 220

ttg gac aag tct gtg gat ttc att gag aaa gca aaa gcc tcc aat ggc     1082
Leu Asp Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn Gly
              225                 230                 235

tgt gtg ctt atc cac tgc tta gct ggg atc tct cgc tcc gcc act att     1130
Cys Val Leu Ile His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile
              240                 245                 250

gct att gcc tac atc atg aag agg atg gac atg tct cta gat gag gct     1178
Ala Ile Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu Ala
255                 260                 265                 270

tac aga ttt gtg aaa gaa aaa aga cct act ata tct ccg aat ttt aat     1226
Tyr Arg Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Asn Phe Asn
                  275                 280                 285

ttt atg ggc caa ctc atg gac tat gag aag acg att aat aac cag act     1274
Phe Met Gly Gln Leu Met Asp Tyr Glu Lys Thr Ile Asn Asn Gln Thr
              290                 295                 300

gga atg tca ggg cca aag agc aaa ctg aag ctg ctg cac cta gac aaa     1322
Gly Met Ser Gly Pro Lys Ser Lys Leu Lys Leu Leu His Leu Asp Lys
              305                 310                 315

ccc agt gag ccc gtg cct gca gcc tca gag ggc gga tgg aag agt gca     1370
Pro Ser Glu Pro Val Pro Ala Ala Ser Glu Gly Gly Trp Lys Ser Ala
              320                 325                 330

ctg tct ctc agt cca ccc tgt gcc aac tcg acc tcg gag gca tca ggg     1418
Leu Ser Leu Ser Pro Pro Cys Ala Asn Ser Thr Ser Glu Ala Ser Gly
335                 340                 345                 350

caa agg ctt gtg cat cct gca agt gtg ccc cgc tta cag ccg tca ctc     1466
Gln Arg Leu Val His Pro Ala Ser Val Pro Arg Leu Gln Pro Ser Leu
                  355                 360                 365
```

73

```
tta gag gac agt ccg ctg gta cag gcg ctc agt ggg ctc cag ctg tcc      1514
Leu Glu Asp Ser Pro Leu Val Gln Ala Leu Ser Gly Leu Gln Leu Ser
            370                 375                 380

tca gag aag ctg gaa gac agc act aag ctc aag cgt tcc ttc tct ctc      1562
Ser Glu Lys Leu Glu Asp Ser Thr Lys Leu Lys Arg Ser Phe Ser Leu
        385                 390                 395

gat atc aaa tct gtt tca tat tca gcc agt atg gcc gcg tcc cta cac      1610
Asp Ile Lys Ser Val Ser Tyr Ser Ala Ser Met Ala Ala Ser Leu His
        400                 405                 410

ggc ttc tcg tca gag gag gct tta gac tac tgc aaa cct tct gcc aca      1658
Gly Phe Ser Ser Glu Glu Ala Leu Asp Tyr Cys Lys Pro Ser Ala Thr
415                 420                 425                 430

ctg gat ggg acc aac aag ctc tgc cag ttc tcc ccc gtt cag gag gta      1706
Leu Asp Gly Thr Asn Lys Leu Cys Gln Phe Ser Pro Val Gln Glu Val
            435                 440                 445

tca gaa cag agt cca gag acc agc ccg gat aag gag gag gcc cac atc      1754
Ser Glu Gln Ser Pro Glu Thr Ser Pro Asp Lys Glu Glu Ala His Ile
            450                 455                 460

ccc aag cag ccc caa cct ccc agg cct tct gag agc cag gtc aca cgc      1802
Pro Lys Gln Pro Gln Pro Pro Arg Pro Ser Glu Ser Gln Val Thr Arg
        465                 470                 475

ttg cac tca gtg aga acc ggc agt agt ggg tcc acc cag agg ccc ttc      1850
Leu His Ser Val Arg Thr Gly Ser Ser Gly Ser Thr Gln Arg Pro Phe
        480                 485                 490

ttc tcg cca ctg cat cgg agc ggg agt gta gag gac aat tac cat acc      1898
Phe Ser Pro Leu His Arg Ser Gly Ser Val Glu Asp Asn Tyr His Thr
495                 500                 505                 510

aac ttc ctt ttt ggc ctt tcc acc agc cag caa cac ctc acc aag tct      1946
Asn Phe Leu Phe Gly Leu Ser Thr Ser Gln Gln His Leu Thr Lys Ser
            515                 520                 525

gca ggg ctt ggc ctc aag ggc tgg cac tca gat att ctg gct ccc cag      1994
Ala Gly Leu Gly Leu Lys Gly Trp His Ser Asp Ile Leu Ala Pro Gln
            530                 535                 540

tcc tct gcc ccc tcc ctg acc agc agc tgg tat ttt gct acg gag cct      2042
Ser Ser Ala Pro Ser Leu Thr Ser Ser Trp Tyr Phe Ala Thr Glu Pro
        545                 550                 555

tca cac ttg tac tct gct tca gcc atc tat gga ggc aac agc agt tac      2090
Ser His Leu Tyr Ser Ala Ser Ala Ile Tyr Gly Gly Asn Ser Ser Tyr
        560                 565                 570

tct gcc tac agc tgt ggc cag ctg ccc act tgc agt gac caa atc tat      2138
Ser Ala Tyr Ser Cys Gly Gln Leu Pro Thr Cys Ser Asp Gln Ile Tyr
575                 580                 585                 590

tct gtt cgt agg cgg cag aag cct act gac aga gct gac tcg agg cgg      2186
Ser Val Arg Arg Arg Gln Lys Pro Thr Asp Arg Ala Asp Ser Arg Arg
            595                 600                 605

agc tgg cat gaa gag agc ccc ttt gaa aag cag ttt aaa cgc aga agc      2234
```

74

```
         Ser Trp His Glu Glu Ser Pro Phe Glu Lys Gln Phe Lys Arg Arg Ser
                     610                 615                 620

tgc caa atg gaa ttt gga gag agc att atg tcg gag aac agg tcc agg       2282
Cys Gln Met Glu Phe Gly Glu Ser Ile Met Ser Glu Asn Arg Ser Arg
            625                 630                 635

gag gag ctg ggc aag gtg ggc agc cag tcc agc ttc tcc ggc agc atg      2330
Glu Glu Leu Gly Lys Val Gly Ser Gln Ser Ser Phe Ser Gly Ser Met
        640                 645                 650

gag atc atc gag gtc tct tgagaagacc tcgtcgcttc tgttgacagt             2378
Glu Ile Ile Glu Val Ser
655                 660

tttgtttcct gttcacaaaa aatagtccct gtaaatctga aatatgtata tgtacataca    2438

tatatatttt tggaatatag agctacggta taaaagcaac agatggatca acacagttgt    2498

tctctcagca cctgcactga gaatagctaa ctctcagaaa agattggaag ggtagatgtt    2558

agaattctcc cagccaggag aagagatttg gttcagtgaa ttgcacatct tcttgttcct    2618

acaaaagcaa gggttttgtt tgtttgtatg ttgtttgttt ttaatgttag agggcaaaat    2678

ccctcccatt ttcacgtgca acagaggtct cagaactcat ctctgtccag gcccttccct    2738

agtgcaccct agcgctaa                                                   2756


<210>   114
<211>   660
<212>   PRT
<213>   Mus musculus

<400>   114

Met Ala His Glu Met Ile Gly Thr Gln Ile Val Thr Glu Ser Leu Val
1               5                   10                  15

Ala Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp Ser Arg
            20                  25                  30

Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile Asn Ile
            35                  40                  45

Asn Cys Ser Lys Leu Met Lys Arg Arg Leu Gln Gln Asp Lys Val Leu
        50                  55                  60

Ile Thr Glu Leu Ile His Gln Ser Thr Lys His Lys Val Asp Ile Asp
65                  70                  75                  80

Cys Asn Gln Arg Val Val Val Tyr Asp His Ser Ser Gln Asp Val Gly
                85                  90                  95
```

```
Ser Leu Ser Ser Asp Cys Phe Leu Thr Val Leu Leu Gly Lys Leu Glu
            100                 105                 110

Arg Ser Phe Asn Ser Val His Leu Leu Ala Gly Gly Phe Ala Glu Phe
        115                 120                 125

Ser Arg Cys Phe Pro Gly Leu Cys Glu Gly Lys Ser Thr Leu Val Pro
    130                 135                 140

Thr Cys Ile Ser Gln Pro Cys Leu Pro Val Ala Asn Ile Gly Pro Thr
145                 150                 155                 160

Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp Val Leu Asn
            165                 170                 175

Lys Asp Leu Met Gln Gln Asn Gly Ile Gly Tyr Val Leu Asn Ala Ser
            180                 185                 190

Asn Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His Phe Leu Arg
            195                 200                 205

Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro Trp Leu Asp
    210                 215                 220

Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn Gly Cys Val
225                 230                 235                 240

Leu Ile His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile
            245                 250                 255

Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu Ala Tyr Arg
            260                 265                 270

Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Asn Phe Asn Phe Met
            275                 280                 285

Gly Gln Leu Met Asp Tyr Glu Lys Thr Ile Asn Asn Gln Thr Gly Met
    290                 295                 300

Ser Gly Pro Lys Ser Lys Leu Lys Leu Leu His Leu Asp Lys Pro Ser
305                 310                 315                 320

Glu Pro Val Pro Ala Ala Ser Glu Gly Gly Trp Lys Ser Ala Leu Ser
            325                 330                 335

Leu Ser Pro Pro Cys Ala Asn Ser Thr Ser Glu Ala Ser Gly Gln Arg
```

Leu Val His Pro Ala Ser Val Pro Arg Leu Gln Pro Ser Leu Leu Glu
      355   360   365

Asp Ser Pro Leu Val Gln Ala Leu Ser Gly Leu Gln Leu Ser Ser Glu
   370   375   380

Lys Leu Glu Asp Ser Thr Lys Leu Lys Arg Ser Phe Ser Leu Asp Ile
385   390   395   400

Lys Ser Val Ser Tyr Ser Ala Ser Met Ala Ala Ser Leu His Gly Phe
      405   410   415

Ser Ser Glu Glu Ala Leu Asp Tyr Cys Lys Pro Ser Ala Thr Leu Asp
      420   425   430

Gly Thr Asn Lys Leu Cys Gln Phe Ser Pro Val Gln Glu Val Ser Glu
      435   440   445

Gln Ser Pro Glu Thr Ser Pro Asp Lys Glu Glu Ala His Ile Pro Lys
      450   455   460

Gln Pro Gln Pro Pro Arg Pro Ser Glu Ser Gln Val Thr Arg Leu His
465   470   475   480

Ser Val Arg Thr Gly Ser Ser Gly Ser Thr Gln Arg Pro Phe Phe Ser
        485   490   495

Pro Leu His Arg Ser Gly Ser Val Glu Asp Asn Tyr His Thr Asn Phe
      500   505   510

Leu Phe Gly Leu Ser Thr Ser Gln Gln His Leu Thr Lys Ser Ala Gly
      515   520   525

Leu Gly Leu Lys Gly Trp His Ser Asp Ile Leu Ala Pro Gln Ser Ser
   530   535   540

Ala Pro Ser Leu Thr Ser Ser Trp Tyr Phe Ala Thr Glu Pro Ser His
545   550   555   560

Leu Tyr Ser Ala Ser Ala Ile Tyr Gly Gly Asn Ser Ser Tyr Ser Ala
        565   570   575

Tyr Ser Cys Gly Gln Leu Pro Thr Cys Ser Asp Gln Ile Tyr Ser Val
      580   585   590

Arg Arg Arg Gln Lys Pro Thr Asp Arg Ala Asp Ser Arg Arg Ser Trp
        595   600   605

His Glu Glu Ser Pro Phe Glu Lys Gln Phe Lys Arg Arg Ser Cys Gln
        610   615   620

Met Glu Phe Gly Glu Ser Ile Met Ser Glu Asn Arg Ser Arg Glu Glu
625   630   635   640

Leu Gly Lys Val Gly Ser Gln Ser Ser Phe Ser Gly Ser Met Glu Ile
                645   650   655

Ile Glu Val Ser
                660

<210>   115
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<212>   DNA
<213>   Homo sapiens

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acaatggagt ggctgagcct ttgagcacac caccattaca tcatcgtggc aaattaaaga   60

aggaggtggg aaaagaggac ttattgttgt catggcccat gagatgattg gaactcaaat   120

tgttactgag aggttggtgg ctctgctgga aagtggaacg gaaaaagtgc tgctaattga   180

tagccggcca tttgtggaat acaatacatc ccacattttg gaagccatta atatcaactg   240

ctccaagctt atgaagcgaa ggttgcaaca ggacaaagtg ttaattacag agctcatcca   300

gcattcagcg aaacataagg ttgacattga ttgcagtcag aaggttgtag tttacgatca   360

aagctcccaa gatgttgcct ctctctcttc agactgtttt ctcactgt   408

<210>   116
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   116

Gly Thr Gln Ile Val Thr Glu Arg Leu Val Ala Leu Leu
1   5   10

<210>   117
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   117

Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp

```
          1                 5                      10
```

<210> 118
<211> 13
<212> PRT
<213> Homo sapiens

<400> 118

```
Glu Leu Ile Gln His Ser Ala Lys His Lys Val Asp Ile
1                 5                      10
```

<210> 119
<211> 13
<212> PRT
<213> Homo sapiens

<400> 119

```
Val Asp Ile Asp Cys Ser Gln Lys Val Val Val Tyr Asp
1                 5                      10
```

<210> 120
<211> 13
<212> PRT
<213> Homo sapiens

<400> 120

```
Asp Arg Leu Glu Asp Ser Asn Lys Leu Lys Arg Ser Phe
1                 5                      10
```

<210> 121
<211> 13
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<213> Homo sapiens

<400> 121

```
Thr Thr Leu Asp Gly Thr Asn Lys Leu Cys Gln Phe Ser
1                 5                      10
```

<210> 122
<211> 13
<212> PRT
<213> Homo sapiens

<400> 122

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Pro Lys Lys Leu Gln Thr Ala Arg Pro Ser Asp Ser Gln
1                 5                      10
```

<210> 123
<211> 13
<212> PRT
<213> Homo sapiens

<400> 123

```
Pro Ser Asp Ser Gln Ser Lys Arg Leu His Ser Val Arg
1                 5                      10
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<210> 124
<211> 13
<212> PRT
<213> Homo sapiens

<400> 124

Ser Lys Arg Leu His Ser Val Arg Thr Ser Ser Ser Gly
1   5   10

<210> 125
<211> 13
<212> PRT
<213> Homo sapiens

<400> 125

Gly Asp Gln Val Tyr Ser Val Arg Arg Arg Gln Lys Pro
1   5   10

<210> 126
<211> 13
<212> PRT
<213> Homo sapiens

<400> 126

Arg Arg Gln Lys Pro Ser Asp Arg Ala Asp Ser Arg Arg
1   5   10

<210> 127
<211> 13
<212> PRT
<213> Homo sapiens

<400> 127

Ser Asp Arg Ala Asp Ser Arg Arg Ser Trp His Glu Glu
1   5   10

<210> 128
<211> 14
<212> PRT
<213> Homo sapiens

<400> 128

Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile
1   5   10

<210> 129
<211> 14
<212> PRT
<213> Homo sapiens

<400> 129

Glu Ala Ile Asn Ile Asn Cys Ser Lys Leu Met Lys Arg Arg
1   5   10

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<210>  130
<211>  14
<212>  PRT
<213>  Homo sapiens

<400>  130

Ile Gly Tyr Val Leu Asn Ala Ser Tyr Thr Cys Pro Lys Pro
1               5                   10


<210>  131
<211>  14
<212>  PRT
<213>  Homo sapiens

<400>  131

Leu Arg Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu
1               5                   10


<210>  132
<211>  14
<212>  PRT
<213>  Homo sapiens

<400>  132

Glu Lys Lys Ile Lys Asn Gln Thr Gly Ala Ser Gly Pro Lys
1               5                   10


<210>  133
<211>  14
<212>  PRT
<213>  Homo sapiens

<400>  133

Ser Ile Met Ser Glu Asn Arg Ser Arg Glu Glu Leu Gly Lys
1               5                   10


<210>  134
<211>  140
<212>  PRT
<213>  Homo sapiens

<400>  134

Gly Pro Thr Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp
1               5                   10                  15

Val Leu Asn Lys Glu Leu Ile Gln Gln Asn Gly Ile Gly Tyr Val Leu
            20                  25                  30

Asn Ala Ser Tyr Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His
            35                  40                  45

Phe Leu Arg Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro
        50                  55                  60

Trp Leu Asp Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn
65                  70                  75                  80
```

```
Gly Cys Val Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr
                    85                  90                  95

Ile Ala Ile Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu
                100                 105                 110

Ala Tyr Arg Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Asn Phe
            115                 120                 125

Asn Phe Leu Gly Gln Leu Leu Asp Tyr Glu Lys Lys
        130                 135                 140
```

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<210>   135
<211>   140
<212>   PRT
<213>   Mus musculus
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```
<400>   135
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Gly Pro Thr Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp
1                   5                   10                  15

Val Leu Asn Lys Asp Leu Met Gln Gln Asn Gly Ile Gly Tyr Val Leu
            20                  25                  30

Asn Ala Ser Asn Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His
        35                  40                  45

Phe Leu Arg Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro
    50                  55                  60

Trp Leu Asp Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn
65                  70                  75                  80

Gly Cys Val Leu Ile His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr
                    85                  90                  95

Ile Ala Ile Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu
                100                 105                 110

Ala Tyr Arg Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Asn Phe
            115                 120                 125

Asn Phe Met Gly Gln Leu Met Asp Tyr Glu Lys Thr
        130                 135                 140
```

```
<210>   136
<211>   38
<212>   DNA
<213>   Homo sapiens
```

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<400>   136
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```
<210>   137
<211>   37
<212>   DNA
<213>   Homo sapiens
```

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<400>  137
gcagcagtcg acggagacct caatgatttc catgctg                              37


<210>  138
<211>  39
<212>  DNA
<213>  Homo sapiens

<400>  138
gcagcagcgg ccgcatggcc catgagatga ttggaactc                           39


<210>  139
<211>  37
<212>  DNA
<213>  Homo sapiens

<400>  139
gcagcagtcg accttcttct catagtccag gagttgg                             37


<210>  140
<211>  38
<212>  DNA
<213>  Homo sapiens

<400>  140
gcagcagcgg ccgcattggg ccaactcgaa ttcttccc                            38


<210>  141
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<212>  DNA
<213>  Homo sapiens

<400>  141
gcagcagtcg acagagacct cgatgatctc catgctg                             37


<210>  142
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<212>  DNA
<213>  Homo sapiens

<400>  142
gcagcagcgg ccgcatggcc catgagatga ttggaactc                           39


<210>  143
<211>  37
<212>  DNA
<213>  Homo sapiens

<400>  143
gcagcagtcg accgtcttct catagtccat gagttgg                             37


<210>  144
<211>  23
<212>  PRT
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<213>  Homo sapiens

<400>  144

Asn Gly Cys Val Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala
1               5                   10                  15

Thr Ile Ala Ile Ala Tyr Ile
            20

<210>  145
<211>  25
<212>  DNA
<213>  Homo sapiens

<400>  145
cacaccacca ttacatcatc gtggc                                           25


<210>  146
<211>  20
<212>  DNA
<213>  Homo sapiens

<400>  146
tgctgctctg ctaccaaccc                                                 20


<210>  147
<211>  5450
<212>  DNA
<213>  Homo sapiens

<220>
<221>  CDS
<222>  (538)..(2532)

<400>  147
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tcggctccgc ggcggcgcct cgcaagtccg ggaggcgagg ggggcccgag gggagacgcc      120

gtgacaactt tcgtttccct ctgagggaat tgggaggtcg gcggccccaa aagctttcag      180

tccagtgtaa agctgttgga gcgcgggagc aaaggtaaag aatgatgtaa tgcgctggct      240

gctccaaagc atctttgtt gtggaatggt tattccagtc atctctttat gaatcaaatg       300

tgaggggctg ctttgtggac ggagtccttt gcaagagcac atcaacggga aagagaaaga      360

gacattcact tggagggctc ttgctgaaaa tgggtttaac tctccttttg ccagtcacca      420

ccagcctgac ctcatacact tttagtacaa tggagtggct gagcctttga gcacaccacc      480

attacatcat cgtggcaaat taaagaagga ggtgggaaaa gaggacttat tgttgtc        537

atg gcc cat gag atg att gga act caa att gtt act gag agg ttg gtg        585
Met Ala His Glu Met Ile Gly Thr Gln Ile Val Thr Glu Arg Leu Val
1               5                   10                  15

gct ctg ctg gaa agt gga acg gaa aaa gtg ctg cta att gat agc cgg        633
```

```
          Ala Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp Ser Arg
                   20                  25                  30

cca ttt gtg gaa tac aat aca tcc cac att ttg gaa gcc att aat atc         681
Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile Asn Ile
         35                  40

aac tgc tcc aag ctt atg aag cga agg ttg caa cag gac aaa gtg tta         729
Asn Cys Ser Lys Leu Met Lys Arg Arg Leu Gln Gln Asp Lys Val Leu
         50                  55                  60

att aca gag ctc atc cag cat tca gcg aaa cat aag gtt gac att gat         777
Ile Thr Glu Leu Ile Gln His Ser Ala Lys His Lys Val Asp Ile Asp
65                  70                  75                  80

tgc agt cag aag gtt gta gtt tac gat caa agc tcc caa gat gtt gcc         825
Cys Ser Gln Lys Val Val Val Tyr Asp Gln Ser Ser Gln Asp Val Ala
                   85                  90                  95

tct ctc tct tca gac tgt ttt ctc act gta ctt ctg ggt aaa ctg gag         873
Ser Leu Ser Ser Asp Cys Phe Leu Thr Val Leu Leu Gly Lys Leu Glu
                  100                 105                 110

aag agc ttc aac tct gtt cac ctg ctt gca ggt ggg ttt gct gag ttc         921
Lys Ser Phe Asn Ser Val His Leu Leu Ala Gly Gly Phe Ala Glu Phe
                  115                 120                 125

tct cgt tgt ttc cct ggc ctc tgt gaa gga aaa tcc act cta gtc cct         969
Ser Arg Cys Phe Pro Gly Leu Cys Glu Gly Lys Ser Thr Leu Val Pro
              130                 135                 140

acc tgc att tct cag cct tgc tta cct gtt gcc aac att ggg cca acc        1017
Thr Cys Ile Ser Gln Pro Cys Leu Pro Val Ala Asn Ile Gly Pro Thr
145                 150                 155                 160

cga att ctt ccc aat ctt tat ctt ggc tgc cag cga gat gtc ctc aac        1065
Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp Val Leu Asn
                  165                 170                 175

aag gag ctg ata cag cag aat ggg att ggt tat gtg tta aat gcc agc        1113
Lys Glu Leu Ile Gln Gln Asn Gly Ile Gly Tyr Val Leu Asn Ala Ser
              180                 185                 190

tat acc tgt cca aag cct gac ttt atc ccc gag tct cat ttc ctg cgt        1161
Tyr Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His Phe Leu Arg
          195                 200                 205

gtg cct gtg aat gac agc ttt tgt gag aaa att ttg ccg tgg ttg gac        1209
Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro Trp Leu Asp
          210                 215                 220

aaa tca gta gat ttc att gag aaa gca aaa gcc tcc aat gga tgt gtt        1257
Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn Gly Cys Val
225                 230                 235                 240

cta gtg cac tgt tta gct ggg atc tcc cgc tcc gcc acc atc gct atc        1305
Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile
                  245                 250                 255

gcc tac atc atg aag agg atg gac atg tct tta gat gaa gct tac aga        1353
Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu Ala Tyr Arg
```

```
ttt gtg aaa gaa aaa aga cct act ata tct cca aac ttc aat ttt ctg     1401
Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Asn Phe Asn Phe Leu
        275             280             285

ggc caa ctc ctg gac tat gag aag aag att aag aac cag act gga gca     1449
Gly Gln Leu Leu Asp Tyr Glu Lys Lys Ile Lys Asn Gln Thr Gly Ala
        290             295             300

tca ggg cca aag agc aaa ctc aag ctg ctg cac ctg gag aag cca aat     1497
Ser Gly Pro Lys Ser Lys Leu Lys Leu Leu His Leu Glu Lys Pro Asn
305             310             315             320

gaa cct gtc cct gct gtc tca gag ggt gga cag aaa agc gag acg ccc     1545
Glu Pro Val Pro Ala Val Ser Glu Gly Gly Gln Lys Ser Glu Thr Pro
                325             330             335

ctc agt cca ccc tgt gcc gac tct gct acc tca gag gca gca gga caa     1593
Leu Ser Pro Pro Cys Ala Asp Ser Ala Thr Ser Glu Ala Ala Gly Gln
        340             345             350

agg ccc gtg cat ccc gcc agc gtg ccc agc gtg ccc agc gtg cag ccg     1641
Arg Pro Val His Pro Ala Ser Val Pro Ser Val Pro Ser Val Gln Pro
        355             360             365

tcg ctg tta gag gac agc ccg ctg gta cag gcg ctc agt ggg ctg cac     1689
Ser Leu Leu Glu Asp Ser Pro Leu Val Gln Ala Leu Ser Gly Leu His
        370             375             380

ctg tcc gca gac agg ctg gaa gac agc aat aag ctc aag cgt tcc ttc     1737
Leu Ser Ala Asp Arg Leu Glu Asp Ser Asn Lys Leu Lys Arg Ser Phe
385             390             395             400

tct ctg gat atc aaa tca gtt tca tat tca gcc agc atg gca gca tcc     1785
Ser Leu Asp Ile Lys Ser Val Ser Tyr Ser Ala Ser Met Ala Ala Ser
                405             410             415

tta cat ggc ttc tcc tca tca gaa gat gct ttg gaa tac tac aaa cct     1833
Leu His Gly Phe Ser Ser Ser Glu Asp Ala Leu Glu Tyr Tyr Lys Pro
        420             425             430

tcc act act ctg gat ggg acc aac aag cta tgc cag ttc tcc cct gtt     1881
Ser Thr Thr Leu Asp Gly Thr Asn Lys Leu Cys Gln Phe Ser Pro Val
        435             440             445

cag gaa cta tcg gag cag act ccc gaa acc agt cct gat aag gag gaa     1929
Gln Glu Leu Ser Glu Gln Thr Pro Glu Thr Ser Pro Asp Lys Glu Glu
        450             455             460

gcc agc atc ccc aag aag ctg cag acc gcc agg cct tca gac agc cag     1977
Ala Ser Ile Pro Lys Lys Leu Gln Thr Ala Arg Pro Ser Asp Ser Gln
465             470             475             480

agc aag cga ttg cat tcg gtc aga acc agc agc agt ggc acc gcc cag     2025
Ser Lys Arg Leu His Ser Val Arg Thr Ser Ser Ser Gly Thr Ala Gln
                485             490             495

agg tcc ctt tta tct cca ctg cat cga agt ggg agc gtg gag gac aat     2073
Arg Ser Leu Leu Ser Pro Leu His Arg Ser Gly Ser Val Glu Asp Asn
                500             505             510
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tac cac acc agc ttc ctt ttc ggc ctt tcc acc agc cag cag cac ctc    2121
Tyr His Thr Ser Phe Leu Phe Gly Leu Ser Thr Ser Gln Gln His Leu
        515                 520                 525

acg aag tct gct ggc ctg ggc ctt aag ggc tgg cac tcg gat atc ttg    2169
Thr Lys Ser Ala Gly Leu Gly Leu Lys Gly Trp His Ser Asp Ile Leu
    530                 535                 540

gcc ccc cag acc tct acc cct tcc ctg acc agc agc tgg tat ttt gcc    2217
Ala Pro Gln Thr Ser Thr Pro Ser Leu Thr Ser Ser Trp Tyr Phe Ala
545                 550                 555                 560

aca gag tcc tca cac ttc tac tct gcc tca gcc atc tac gga ggc agt    2265
Thr Glu Ser Ser His Phe Tyr Ser Ala Ser Ala Ile Tyr Gly Gly Ser
                565                 570                 575

gcc agt tac tct gcc tac agc tgc agc cag ctg ccc act tgc gga gac    2313
Ala Ser Tyr Ser Ala Tyr Ser Cys Ser Gln Leu Pro Thr Cys Gly Asp
            580                 585                 590

caa gtc tat tct gtg cgc agg cgg cag aag cca agt gac aga gct gac    2361
Gln Val Tyr Ser Val Arg Arg Arg Gln Lys Pro Ser Asp Arg Ala Asp
            595                 600                 605

tcg cgg cgg agc tgg cat gaa gag agc ccc ttt gaa aag cag ttt aaa    2409
Ser Arg Arg Ser Trp His Glu Glu Ser Pro Phe Glu Lys Gln Phe Lys
    610                 615                 620

cgc aga agc tgc caa atg gaa ttt gga gag agc atc atg tca gag aac    2457
Arg Arg Ser Cys Gln Met Glu Phe Gly Glu Ser Ile Met Ser Glu Asn
625                 630                 635                 640

agg tca cgg gaa gag ctg ggg aaa gtg ggc agt cag tct agc ttt tcg    2505
Arg Ser Arg Glu Glu Leu Gly Lys Val Gly Ser Gln Ser Ser Phe Ser
                645                 650                 655

ggc agc atg gaa atc att gag gtc tcc tgagaagaaa gacacttgtg          2552
Gly Ser Met Glu Ile Ile Glu Val Ser
            660                 665

acttctatag acaatttttt ttttcttgtt cacaaaaaaa ttccctgtaa atctgaaata    2612

tatatatgta catacatata tattttttgga aaatggagct atggtgtaaa agcaacaggt    2672

ggatcaaccc agttgttact ctcttaacat ctgcatttga gagatcagct aatacttctc    2732

tcaacaaaaa tggaagggca gatgctagaa tcccccctag acggaggaaa accattttat    2792

tcagtgaatt acacatcctc ttgttcttaa aaaagcaagt gtctttggtg ttggaggaca    2852

aaatccccta ccattttcac gttgtgctac taagagatct caaatattag tctttgtccg    2912

gacccttcca tagtacacct tagcgctgag actgagccag cttgggggtc aggtaggtag    2972

accctgttag ggacagagcc tagtggtaaa tccaagagaa atgatcctat ccaaagctga    3032

ttcacaaacc cacgctcacc tgacagccga gggacacgag catcactctg ctggacggac    3092

cattaggggc cttgccaagg tctaccttag agcaaaccca gtacctcaga caggaaagtc    3152
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87

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ggggctttga ccactaccat atctggtagc ccattttcta ggcattgtga ataggtaggt    3212

agctagtcac acttttcaga ccaattcaaa ctgtctatgc acaaaattcc cgtgggccta    3272

gatggagata attttttttt cttctcagct ttatgaagag aagggaaact gtctaggatt    3332

cagctgaacc accaggaacc tggcaacatc acgatttaag ctaaggttgg gaggctaacg    3392

agtctacctc cctctttgta aatcaaagaa ttgtttaaaa tgggattgtc aatcctttaa    3452

ataaagatga acttggtttc aagccaaatg tgaatttatt tgggttggta gcagagcagc    3512

agcaccttca aattctcagc caaagcagat gttttttgccc tttctgcttc actgcatgga    3572

tacagttggt aaaatgtaat aatatggcag aattttttatg gaaacttcct agggaggtaa    3632

attatgggaa gattaagaaa ggtacaaatt gctgaggaga agcaggaaac ctgtttcctt    3692

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tcctggcagc tgaacatagg aggtcactgg aacaagtgat agtgcagatt ggctttcaaa    4052

catcctcctg gcttgagttt tatcagctac aatgtgggtc ctctttttgaa gcctaattc    4112

acaacagcag cttttttgggg gtggggctgg gcgggtgttg tcattgttct ttcccttcct    4172

gtaagtgtcg ctagttgctg cctcgtatct caggttttttc tctgtttttg agaaatggac    4232

agttttttga ccaggatgtg acttcatgtt tcctatggtg acttctaaaa ccagcacaga    4292

atgatatgac tcaacacaga ccgacttggt tatgggggatg atgagccgca cagacctcac    4352

tagttgtgca caaataatgt gctatgatgg ggtgtaaagt gaaggcagaa gagggtcagc    4412

cgcattgtta tgatactggg aaagtgctgg tcaacgattt gagttagttt ttagatatac    4472

attgaaatct ttaatcagac attctcaagt ttcacacagt agttttttgat gttatgtaca    4532

cacacaccaa atgtgtaaca gttcaccact tccagatgt ggtcatgccc aaaacatgtt    4592

taagaaagga aagcagtagc tccttgctaa cgatgtttca ggaggtttgg ggcacttggt    4652

tttaatgagc ttctgtcatt tagggcttct cttggccatg gtccccttcc ttctggaact    4712

gtgatgtagt cacatcctac agcctttagt gctggttcac tagtgtcaga taatcagttc    4772

ttggaatcga gactgccgtg gcgaaggggt ggcctcggag gcaggctctg gagctgcttg    4832

gatgtctttta ggtggggtgg tggctggctc tcttcagcat gtaattgggg aaaccctcgc    4892

gtctactagg ggtgatacag atggtgattt taaagagcaa aactagactt ctatgtgaga    4952

agtgctggaa aatgatttag gacatgtgta aagttagatg gaaagactgt aaatgtttaa    5012
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tatgaatata gtgttctttt gaagtaaggc cagctgttga acggttaaac tgtgcatttc    5072

tcattttgat gtgtcatgta tgttaatgta tgaaatgatt aaataaaatc aaaactggta    5132

cctgtttata cataaatacg agaaaagacc tatctttgca gccataaact cggtgggaac    5192

accaccactc aagttgccaa aggaggcagt ggtgaaacct gtcctgttct cacttaaatg    5252

aggatttagc tcaaaataaa gtggtggtgt catcaggttt attccgtgtt ctgtcattca    5312

catggaacac cggatgatta gctaacagtt tagtgccagc cttcattctt tactgtgtac    5372

gttaaatgca cactacagtg aaaaagccta agacacttgg taaatatttt ctagctgact    5432

gattccagaa cacacaag                                                  5450


<210>  148
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<212>  PRT
<213>  Homo sapiens

<400>  148

Met Ala His Glu Met Ile Gly Thr Gln Ile Val Thr Glu Arg Leu Val
1               5                   10                  15

Ala Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp Ser Arg
            20                  25                  30

Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile Asn Ile
        35                  40                  45

Asn Cys Ser Lys Leu Met Lys Arg Arg Leu Gln Gln Asp Lys Val Leu
        50                  55                  60

Ile Thr Glu Leu Ile Gln His Ser Ala Lys His Lys Val Asp Ile Asp
65                  70                  75                  80

Cys Ser Gln Lys Val Val Val Tyr Asp Gln Ser Ser Gln Asp Val Ala
                85                  90                  95

Ser Leu Ser Ser Asp Cys Phe Leu Thr Val Leu Leu Gly Lys Leu Glu
            100                 105                 110

Lys Ser Phe Asn Ser Val His Leu Leu Ala Gly Gly Phe Ala Glu Phe
        115                 120                 125

Ser Arg Cys Phe Pro Gly Leu Cys Glu Gly Lys Ser Thr Leu Val Pro
    130                 135                 140
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89

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Thr Cys Ile Ser Gln Pro Cys Leu Pro Val Ala Asn Ile Gly Pro Thr
145                 150                 155                 160

Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp Val Leu Asn
                165                 170                 175

Lys Glu Leu Ile Gln Gln Asn Gly Ile Gly Tyr Val Leu Asn Ala Ser
                180                 185                 190

Tyr Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His Phe Leu Arg
            195                 200                 205

Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro Trp Leu Asp
        210                 215                 220

Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn Gly Cys Val
225                 230                 235                 240

Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile
                245                 250                 255

Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu Ala Tyr Arg
            260                 265                 270

Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Asn Phe Asn Phe Leu
            275                 280                 285

Gly Gln Leu Leu Asp Tyr Glu Lys Lys Ile Lys Asn Gln Thr Gly Ala
        290                 295                 300

Ser Gly Pro Lys Ser Lys Leu Lys Leu Leu His Leu Glu Lys Pro Asn
305                 310                 315                 320

Glu Pro Val Pro Ala Val Ser Glu Gly Gly Gln Lys Ser Glu Thr Pro
                325                 330                 335

Leu Ser Pro Pro Cys Ala Asp Ser Ala Thr Ser Glu Ala Ala Gly Gln
            340                 345                 350

Arg Pro Val His Pro Ala Ser Val Pro Ser Val Pro Ser Val Gln Pro
        355                 360                 365

Ser Leu Leu Glu Asp Ser Pro Leu Val Gln Ala Leu Ser Gly Leu His
    370                 375                 380

Leu Ser Ala Asp Arg Leu Glu Asp Ser Asn Lys Leu Lys Arg Ser Phe
```

Ser Leu Asp Ile Lys Ser Val Ser Tyr Ser Ala Ser Met Ala Ala Ser
          405   410   415

Leu His Gly Phe Ser Ser Ser Glu Asp Ala Leu Glu Tyr Tyr Lys Pro
          420   425   430

Ser Thr Thr Leu Asp Gly Thr Asn Lys Leu Cys Gln Phe Ser Pro Val
          435   440   445

Gln Glu Leu Ser Glu Gln Thr Pro Glu Thr Ser Pro Asp Lys Glu Glu
    450   455   460

Ala Ser Ile Pro Lys Lys Leu Gln Thr Ala Arg Pro Ser Asp Ser Gln
465   470   475   480

Ser Lys Arg Leu His Ser Val Arg Thr Ser Ser Ser Gly Thr Ala Gln
          485   490   495

Arg Ser Leu Leu Ser Pro Leu His Arg Ser Gly Ser Val Glu Asp Asn
          500   505   510

Tyr His Thr Ser Phe Leu Phe Gly Leu Ser Thr Ser Gln Gln His Leu
          515   520   525

Thr Lys Ser Ala Gly Leu Gly Leu Lys Gly Trp His Ser Asp Ile Leu
          530   535   540

Ala Pro Gln Thr Ser Thr Pro Ser Leu Thr Ser Ser Trp Tyr Phe Ala
545   550   555   560

Thr Glu Ser Ser His Phe Tyr Ser Ala Ser Ala Ile Tyr Gly Gly Ser
          565   570   575

Ala Ser Tyr Ser Ala Tyr Ser Cys Ser Gln Leu Pro Thr Cys Gly Asp
          580   585   590

Gln Val Tyr Ser Val Arg Arg Arg Gln Lys Pro Ser Asp Arg Ala Asp
          595   600   605

Ser Arg Arg Ser Trp His Glu Glu Ser Pro Phe Glu Lys Gln Phe Lys
          610   615   620

Arg Arg Ser Cys Gln Met Glu Phe Gly Glu Ser Ile Met Ser Glu Asn
625   630   635   640

91

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Arg Ser Arg Glu Glu Leu Gly Lys Val Gly Ser Gln Ser Ser Phe Ser
            645                 650                 655


Gly Ser Met Glu Ile Ile Glu Val Ser
            660                 665


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gtactgcggc tgcagcaggc ccggcggggc tctggcttgg gctccggctc tgccacgaag       180

ctgctgtcct cgtcctctct ccaggtgatg gtggctgttt cctcagtcag ccatgcagag       240

ggaaacccaa ctttccccga aagaaaaaga aatttagaac gtccaacacc aaagtacaca       300

aaagtagggg agcgtttacg gcatgtcatt cctggacaca tggcatgttc catggcgtgt       360

ggcggtagag cttgcaagta tgagaaccca gcccgctgga gtgagcagga gcaagccatt       420

aaggggggttt actcatcctg ggtcactgat aatatactgg ccatggcccg cccatcctct       480

gagctcctgg agaagtacca catccattgat cagttcctca gccatggcat aaaaacaata       540

atcaacctcc agcgccctgg tgagcatgct agctgtggga accctctgga acaagaaagt       600

ggcttcacat accttcctga ggctttc atg gag gct ggc att tac ttc tac aat       654
                                 Met Glu Ala Gly Ile Tyr Phe Tyr Asn
                                  1               5

ttc gga tgg aag gat tat ggt gta gcg tct ctt act act atc cta gat       702
Phe Gly Trp Lys Asp Tyr Gly Val Ala Ser Leu Thr Thr Ile Leu Asp
 10              15                  20                  25

atg gtg aag gtg atg aca ttt gcc tta cag gaa gga aaa gta gct atc       750
Met Val Lys Val Met Thr Phe Ala Leu Gln Glu Gly Lys Val Ala Ile
                 30                  35                  40

cat tgt cat gca ggg ctt ggt cga aca ggt gtt tta ata gcc tgt tac       798
His Cys His Ala Gly Leu Gly Arg Thr Gly Val Leu Ile Ala Cys Tyr
             45                  50                  55

tta gtt ttt gca acg aga atg act gct gac caa gca att ata ttt gtg       846
Leu Val Phe Ala Thr Arg Met Thr Ala Asp Gln Ala Ile Ile Phe Val
         60                  65                  70

cgg gca aag cga ccc aat tcc ata caa acc aga gga cag ctc ctc tgt       894
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92

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Arg Ala Lys Arg Pro Asn Ser Ile Gln Thr Arg Gly Gln Leu Leu Cys
    75                  80                  85

gta agg gaa ttt act cag ttt cta act cct ctc cgc aat ata ttc tct    942
Val Arg Glu Phe Thr Gln Phe Leu Thr Pro Leu Arg Asn Ile Phe Ser
90              95                  100                 105

tgc tgt gat ccc aaa gca cat gct gtc acc tta cct caa tat cta att    990
Cys Cys Asp Pro Lys Ala His Ala Val Thr Leu Pro Gln Tyr Leu Ile
                110                 115                 120

cgc cag cgt cat ctg ctt cat ggt tat gag gca cga ctt ctg aaa cac    1038
Arg Gln Arg His Leu Leu His Gly Tyr Glu Ala Arg Leu Leu Lys His
                125                 130                 135

gtg cca aaa att atc cac cta gtt tgc aaa ttg ctg ctg gac tta gcg    1086
Val Pro Lys Ile Ile His Leu Val Cys Lys Leu Leu Leu Asp Leu Ala
            140                 145                 150

gag aac agg cca gtg atg atg aag gat gtg tcc gaa gga cct ggt ctc    1134
Glu Asn Arg Pro Val Met Met Lys Asp Val Ser Glu Gly Pro Gly Leu
    155                 160                 165

tct gct gaa ata gaa aag aca atg tct gag atg gtc acc atg cag ctg    1182
Ser Ala Glu Ile Glu Lys Thr Met Ser Glu Met Val Thr Met Gln Leu
170                 175                 180                 185

gat aaa gag tta ctg agg cat gac agt gat gtg tcc aac ccg cct aac    1230
Asp Lys Glu Leu Leu Arg His Asp Ser Asp Val Ser Asn Pro Pro Asn
                190                 195                 200

ccc act gca gtg gca gca gat ttt gac aat cga ggc atg att ttc tcc    1278
Pro Thr Ala Val Ala Ala Asp Phe Asp Asn Arg Gly Met Ile Phe Ser
                205                 210                 215

aat gag caa cag ttt gac cct ctt tgg aaa agg cgg aat gtt gag tgc    1326
Asn Glu Gln Gln Phe Asp Pro Leu Trp Lys Arg Arg Asn Val Glu Cys
        220                 225                 230

ctt caa ccc ctg act cat ctg aaa agg cgg ctc agc tac agt gac tca    1374
Leu Gln Pro Leu Thr His Leu Lys Arg Arg Leu Ser Tyr Ser Asp Ser
    235                 240                 245

gat tta aag agg gcc gag aac ctc ctg gag caa ggg gag act cca cag    1422
Asp Leu Lys Arg Ala Glu Asn Leu Leu Glu Gln Gly Glu Thr Pro Gln
250                 255                 260                 265

aca gtg cct gcc cag atc ttg gtt ggc cac aag ccc agg cag cag aag    1470
Thr Val Pro Ala Gln Ile Leu Val Gly His Lys Pro Arg Gln Gln Lys
                270                 275                 280

ctc ata agc cat tgt tac atc cca cag tct cca gaa cca gac tta cac    1518
Leu Ile Ser His Cys Tyr Ile Pro Gln Ser Pro Glu Pro Asp Leu His
                285                 290                 295

aag gaa gcc ttg gtt cgc agc aca ctt tct ttc tgg agt cag tca aag    1566
Lys Glu Ala Leu Val Arg Ser Thr Leu Ser Phe Trp Ser Gln Ser Lys
        300                 305                 310

ttt gga ggc ctg gaa gga ctc aaa gat aat ggg tca cca att ttc cat    1614
Phe Gly Gly Leu Glu Gly Leu Lys Asp Asn Gly Ser Pro Ile Phe His
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93

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gga agg atc att cca aag gaa gca cag cag agt gga gct ttc tct gca    1662
Gly Arg Ile Ile Pro Lys Glu Ala Gln Gln Ser Gly Ala Phe Ser Ala
330             335             340             345

gat gtt tca ggc tca cac agc cct ggg gag cca gtt tca ccc agc ttt    1710
Asp Val Ser Gly Ser His Ser Pro Gly Glu Pro Val Ser Pro Ser Phe
                350             355             360

gca aat gtc cat aag gat cca aac cct gct cac cag caa gtg tct cac    1758
Ala Asn Val His Lys Asp Pro Asn Pro Ala His Gln Gln Val Ser His
                365             370             375

tgt cag tgt aaa act cat ggt gtt ggg agc cct ggc tct gtc agg cag    1806
Cys Gln Cys Lys Thr His Gly Val Gly Ser Pro Gly Ser Val Arg Gln
        380             385             390

aac agc agg aca ccc cga agc cct ctg gac tgt ggc tcc agt ccc aaa    1854
Asn Ser Arg Thr Pro Arg Ser Pro Leu Asp Cys Gly Ser Ser Pro Lys
        395             400             405

gca cag ttc ttg gtt gaa cat gaa acc cag gac agt aaa gat ctg tct    1902
Ala Gln Phe Leu Val Glu His Glu Thr Gln Asp Ser Lys Asp Leu Ser
410             415             420             425

gaa gca gct tca cac tct gca tta cag tct gaa ttg agt gct gag gca    1950
Glu Ala Ala Ser His Ser Ala Leu Gln Ser Glu Leu Ser Ala Glu Ala
                430             435             440

aga aga ata ctg gcg gcc aaa gcc cta gca aat tta aat gaa tct gta    1998
Arg Arg Ile Leu Ala Ala Lys Ala Leu Ala Asn Leu Asn Glu Ser Val
                445             450             455

gaa aag gag gaa cta aaa agg aag gta gaa atg tgg cag aaa gag ctt    2046
Glu Lys Glu Glu Leu Lys Arg Lys Val Glu Met Trp Gln Lys Glu Leu
        460             465             470

aat tcc cga gat gga gct tgg gaa aga ata tgt ggc gag agg gac cct    2094
Asn Ser Arg Asp Gly Ala Trp Glu Arg Ile Cys Gly Glu Arg Asp Pro
        475             480             485

ttc atc cta tgc agc ttg atg tgg tct tgg gtg gag caa ctg aag gag    2142
Phe Ile Leu Cys Ser Leu Met Trp Ser Trp Val Glu Gln Leu Lys Glu
490             495             500             505

cct gta atc acc aaa gag gat gtg gac atg ttg gtt gac agg cga gca    2190
Pro Val Ile Thr Lys Glu Asp Val Asp Met Leu Val Asp Arg Arg Ala
                510             515             520

gat gcc gca gaa gca ctt ttt tta tta gag aag gga cag cac cag act    2238
Asp Ala Ala Glu Ala Leu Phe Leu Leu Glu Lys Gly Gln His Gln Thr
                525             530             535

att ctc tgc gtg ttg cac tgc ata gtg aac ctg cag aca att ccc gtg    2286
Ile Leu Cys Val Leu His Cys Ile Val Asn Leu Gln Thr Ile Pro Val
        540             545             550

gat gtg gag gaa gct ttc ctt gcc cat gcc att aag gca ttc act aag    2334
Asp Val Glu Glu Ala Phe Leu Ala His Ala Ile Lys Ala Phe Thr Lys
        555             560             565
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gtt aat ttt gat tct gaa aat gga cca aca gtt tac aac acc ctg aag      2382
Val Asn Phe Asp Ser Glu Asn Gly Pro Thr Val Tyr Asn Thr Leu Lys
570                     575                 580                 585

aaa ata ttt aag cac acg ctg gaa gaa aaa aga aaa atg aca aaa gat      2430
Lys Ile Phe Lys His Thr Leu Glu Glu Lys Arg Lys Met Thr Lys Asp
                    590                 595                 600

ggc cct aag cct ggc ctc tagctttcac tcatggtgaa tatttcagac           2478
Gly Pro Lys Pro Gly Leu
                605

ctaaagatcc agatagtatc tctgttcata tgtgaataag ttgaagattg tggggctact   2538

ttttctcata gcactttatt ttgaatgttg ttagtttgtg ctgagaatgg tcgtccgtat   2598

ttgaaccaat tatttatttt aaaatatatt taagctacat ttttgttttg aaaaattgcc   2658

ataaatttgg tgccactttc ttttatttat ttgactgagt taatattatt gtattaacat   2718

tttaagtata tggtgtttac attcttattt cttttgacat tttggaaata atcataactt   2778

gtctttccaa aataaccatt ttcttgatgg aactcttcct agagtttttta ccaaatagct   2838

aactttagta gtaaaacctc attgtgtatc cattcccca cagatgaact aagaaagtca    2898

ccaagtgtct taagctgttt tatatttgtt acgaagaagg ctattgctac aatattttta   2958

aaggtttctt ttttaacttt gaaattttt gttttttcctt ttcttttat aaatgtaaca    3018

gagggtttca aagcatatta tttttcagag agatttagtt ttactttaat ggagtgactg   3078

tgaagtggtt gggattttt gcttgtagaa agtagacttg ctctttgtca gatttccaaa    3138

caaccttgcc agccttggct gtcaaaagga ggcaggagca gttctcaaca caccaagcct   3198

tattcccact cccttgggtt gctgctgagc caaatagcat ctttacagag gaagtgggat   3258

cagaggcagg aagtgtggaa agttgctaag aagcagggct tgcctctgtc ctcccgggga   3318

ctccacaggg atattcgtgc agggcagggg ctctgtgcca gccctgctct ctcagatgcc   3378

acagccactc tgcagaggtg actcttggag ctggaggaag tcaaaactgg gccactgttt   3438

gtactgatgg tgtattagca tgagcagcgt ggccctggcc ccacactccc aaatctgcca   3498

ctccatagac ccacttgcct caaggcttta tatttggctg ctttcttaca atgagaatta   3558

agatttttaa actgaagttg accatacagg ttgcattagc cctaactggc ttcatgtaag   3618

aagggtgact gcctaaaacta gttccttgta agctgaacca tcaattatca gttgaagcca   3678

tacttttatt taaattaata tacgtagata ccagaggcca agccacagag aggataaatag   3738

ttcttcccaa taaaggtgat attaatcaga ctaatttcga actaaagaag ttactgctta   3798

aagacggaat ttcaggggaa gcaagactca tttagaacaa atgaaatttc tccagtccta   3858

catttctgaa ttgacttcta gcacatcaaa aatatttcag tcattatcag tctcattaac   3918
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95

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tgaaatgcca aatgctaaat gcagtgttct ttcacactgt tttaattttc ttgggaaatt    3978

gagtccagtg gatgttaatg gagtgggttg cccatccctg aaatgtctta ttttcaagtg    4038

cctggcctgg gaaagaaggg gaagaaacaa ttgcattata tccaaagata cactataaaa    4098

atagagtttt taccaaaaaa agatgtttgt tctcatctca gtaggcctca tttgggcaag    4158

tgacccacag gtcttttggc gagtttgcta tttgcctgtt gaaatacttg tttcaactta    4218

gagaacagtt atgatgtgac catagcatgg cacaactaaa aatctaagcc tgaaacctga    4278

aaaaagagat atgacaaggg aaattaatca ggctatacat aagtattgta tttatttgaa    4338

taaaaataaa aagagcaacc cataaaaaaa aaaaaaaaa aaaaaaaaa aaaag           4393
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<210>   150
<211>   607
<212>   PRT
<213>   Homo sapiens

<400>   150

Met Glu Ala Gly Ile Tyr Phe Tyr Asn Phe Gly Trp Lys Asp Tyr Gly
1   5   10   15

Val Ala Ser Leu Thr Thr Ile Leu Asp Met Val Lys Val Met Thr Phe
            20   25   30

Ala Leu Gln Glu Gly Lys Val Ala Ile His Cys His Ala Gly Leu Gly
        35   40   45

Arg Thr Gly Val Leu Ile Ala Cys Tyr Leu Val Phe Ala Thr Arg Met
    50   55   60

Thr Ala Asp Gln Ala Ile Ile Phe Val Arg Ala Lys Arg Pro Asn Ser
65   70   75   80

Ile Gln Thr Arg Gly Gln Leu Leu Cys Val Arg Glu Phe Thr Gln Phe
                85   90   95

Leu Thr Pro Leu Arg Asn Ile Phe Ser Cys Cys Asp Pro Lys Ala His
            100   105   110

Ala Val Thr Leu Pro Gln Tyr Leu Ile Arg Gln Arg His Leu Leu His
        115   120   125

Gly Tyr Glu Ala Arg Leu Leu Lys His Val Pro Lys Ile Ile His Leu
    130   135   140

Val Cys Lys Leu Leu Leu Asp Leu Ala Glu Asn Arg Pro Val Met Met
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96
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Lys Asp Val Ser Glu Gly Pro Gly Leu Ser Ala Glu Ile Glu Lys Thr
                165   170   175

Met Ser Glu Met Val Thr Met Gln Leu Asp Lys Glu Leu Leu Arg His
            180   185   190

Asp Ser Asp Val Ser Asn Pro Pro Asn Pro Thr Ala Val Ala Ala Asp
            195   200   205

Phe Asp Asn Arg Gly Met Ile Phe Ser Asn Glu Gln Gln Phe Asp Pro
        210   215   220

Leu Trp Lys Arg Arg Asn Val Glu Cys Leu Gln Pro Leu Thr His Leu
225   230   235   240

Lys Arg Arg Leu Ser Tyr Ser Asp Ser Asp Leu Lys Arg Ala Glu Asn
                245   250   255

Leu Leu Glu Gln Gly Glu Thr Pro Gln Thr Val Pro Ala Gln Ile Leu
            260   265   270

Val Gly His Lys Pro Arg Gln Gln Lys Leu Ile Ser His Cys Tyr Ile
        275   280   285

Pro Gln Ser Pro Glu Pro Asp Leu His Lys Glu Ala Leu Val Arg Ser
    290   295   300

Thr Leu Ser Phe Trp Ser Gln Ser Lys Phe Gly Gly Leu Glu Gly Leu
305   310   315   320

Lys Asp Asn Gly Ser Pro Ile Phe His Gly Arg Ile Ile Pro Lys Glu
                325   330   335

Ala Gln Gln Ser Gly Ala Phe Ser Ala Asp Val Ser Gly Ser His Ser
            340   345   350

Pro Gly Glu Pro Val Ser Pro Ser Phe Ala Asn Val His Lys Asp Pro
        355   360   365

Asn Pro Ala His Gln Gln Val Ser His Cys Gln Cys Lys Thr His Gly
    370   375   380

Val Gly Ser Pro Gly Ser Val Arg Gln Asn Ser Arg Thr Pro Arg Ser
385   390   395   400

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Pro Leu Asp Cys Gly Ser Ser Pro Lys Ala Gln Phe Leu Val Glu His
                405                 410                 415

Glu Thr Gln Asp Ser Lys Asp Leu Ser Glu Ala Ala Ser His Ser Ala
                420                 425                 430

Leu Gln Ser Glu Leu Ser Ala Glu Ala Arg Arg Ile Leu Ala Ala Lys
                435                 440                 445

Ala Leu Ala Asn Leu Asn Glu Ser Val Glu Lys Glu Glu Leu Lys Arg
            450                 455                 460

Lys Val Glu Met Trp Gln Lys Glu Leu Asn Ser Arg Asp Gly Ala Trp
465                 470                 475                 480

Glu Arg Ile Cys Gly Glu Arg Asp Pro Phe Ile Leu Cys Ser Leu Met
                485                 490                 495

Trp Ser Trp Val Glu Gln Leu Lys Glu Pro Val Ile Thr Lys Glu Asp
                500                 505                 510

Val Asp Met Leu Val Asp Arg Arg Ala Asp Ala Ala Glu Ala Leu Phe
            515                 520                 525

Leu Leu Glu Lys Gly Gln His Gln Thr Ile Leu Cys Val Leu His Cys
            530                 535                 540

Ile Val Asn Leu Gln Thr Ile Pro Val Asp Val Glu Glu Ala Phe Leu
545                 550                 555                 560

Ala His Ala Ile Lys Ala Phe Thr Lys Val Asn Phe Asp Ser Glu Asn
                565                 570                 575

Gly Pro Thr Val Tyr Asn Thr Leu Lys Lys Ile Phe Lys His Thr Leu
            580                 585                 590

Glu Glu Lys Arg Lys Met Thr Lys Asp Gly Pro Lys Pro Gly Leu
            595                 600                 605
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accgctgtc ctgtgccctt tcccagcg atg ggc gtg cag ccc ccc aac ttc   112
                              Met Gly Val Gln Pro Pro Asn Phe
                              1   5

tcc tgg gtg ctt ccg ggc cgg ctg gcg gga ctg gcg ctg ccg cgg ctc   160
Ser Trp Val Leu Pro Gly Arg Leu Ala Gly Leu Ala Leu Pro Arg Leu
     10   15   20

ccc gcc cac tac cag ttc ctg ttg gac ctg ggc gcg cgg cac ctg gtg   208
Pro Ala His Tyr Gln Phe Leu Leu Asp Leu Gly Val Arg His Leu Val
25   30   35   40

tcc ctg acg gag cgc ggg ccc cct cac agc gac agc tgc ccc ggc ctc   256
Ser Leu Thr Glu Arg Gly Pro Pro His Ser Asp Ser Cys Pro Gly Leu
            45   50   55

acc ctg cac cgc ctg cgc atc ccc gac ttc tgc ccg ccg gcc ccc gac   304
Thr Leu His Arg Leu Arg Ile Pro Asp Phe Cys Pro Pro Ala Pro Asp
        60   65   70

cag atc gac cgc ttc gtg cag atc gtg gac gag gcc aac gca cgg gga   352
Gln Ile Asp Arg Phe Val Gln Ile Val Asp Glu Ala Asn Ala Arg Gly
    75   80   85

gag gct gtg gga gtg cac tgt gct ctg ggc ttt ggc cgc act ggc acc   400
Glu Ala Val Gly Val His Cys Ala Leu Gly Phe Gly Arg Thr Gly Thr
90   95   100

atg ctg gcc tgt tac ctg gtg aag gag cgg ggc ttg gct gca gga gat   448
Met Leu Ala Cys Tyr Leu Val Lys Glu Arg Gly Leu Ala Ala Gly Asp
105   110   115   120

gcc att gct gaa atc cga cga cta cga ccc ggc tcc atc gag acc tat   496
Ala Ile Ala Glu Ile Arg Arg Leu Arg Pro Gly Ser Ile Glu Thr Tyr
                125   130   135

gag cag gag aaa gca gtc ttc cag ttc tac cag cga acg aaa   538
Glu Gln Glu Lys Ala Val Phe Gln Phe Tyr Gln Arg Thr Lys
            140   145   150

taagggggcct tagtacccctt ctaccaggcc ctcactcccc ttccccatgt tgtcgatggg   598

gccagagatg aagggaagtg gactaaagta ttaaaccctc tagctccat tggctgaaga   658

cactgaagta gcccacccct gcaggcaggt cctgattgaa ggggaggctt gtactgcttt   718

gttgaataaa tgagttttac gaaccaggaa aaaaaaaaa aaaaaaaaa aaaaaaaaaa   778

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa   838

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaagggc   878

<213> Homo sapiens

<400> 152

Met Gly Val Gln Pro Pro Asn Phe Ser Trp Val Leu Pro Gly Arg Leu
1   5   10   15

Ala Gly Leu Ala Leu Pro Arg Leu Pro Ala His Tyr Gln Phe Leu Leu
            20   25   30

Asp Leu Gly Val Arg His Leu Val Ser Leu Thr Glu Arg Gly Pro Pro
            35   40   45

His Ser Asp Ser Cys Pro Gly Leu Thr Leu His Arg Leu Arg Ile Pro
        50   55   60

Asp Phe Cys Pro Pro Ala Pro Asp Gln Ile Asp Arg Phe Val Gln Ile
65   70   75   80

Val Asp Glu Ala Asn Ala Arg Gly Glu Ala Val Gly Val His Cys Ala
                85   90   95

Leu Gly Phe Gly Arg Thr Gly Thr Met Leu Ala Cys Tyr Leu Val Lys
            100   105   110

Glu Arg Gly Leu Ala Ala Gly Asp Ala Ile Ala Glu Ile Arg Arg Leu
            115   120   125

Arg Pro Gly Ser Ile Glu Thr Tyr Glu Gln Glu Lys Ala Val Phe Gln
            130   135   140

Phe Tyr Gln Arg Thr Lys
145   150

<210> 153
<211> 470
<212> PRT
<213> Homo sapiens

<400> 153

Met Glu Ala Gly Ile Tyr Phe Asn Phe Gly Trp Lys Asp Tyr Gly Val
1   5   10   15

Ala Ser Leu Thr Thr Ile Asp Met Val Lys Val Met Thr Phe Ala Leu
            20   25   30

Gln Glu Gly Lys Val Ile His Cys His Ala Gly Leu Gly Arg Thr Gly
            35   40   45

Val Leu Ile Ala Tyr Leu Val Phe Ala Thr Arg Met Thr Ala Asp Gln

100

Ala Ile Ile Val Arg Ala Lys Arg Pro Asn Ser Ile Gln Thr Arg Gly
65   70   75   80

Gln Leu Cys Val Arg Glu Phe Thr Gln Phe Leu Thr Pro Leu Arg Asn
                     85   90   95

Ile Ser Cys Cys Asp Pro Lys Ala His Ala Val Thr Leu Pro Gln Tyr
                     100   105   110

Ile Arg Gln Arg His Leu Leu His Gly Tyr Glu Ala Arg Leu Leu His
           115   120   125

Val Pro Lys Ile Ile His Leu Val Cys Lys Leu Leu Leu Asp Ala Glu
           130   135   140

Asn Arg Pro Val Met Met Lys Asp Val Ser Glu Gly Pro Leu Ser Ala
145   150   155   160

Glu Ile Glu Lys Thr Met Ser Glu Met Val Thr Met Leu Asp Lys Glu
                     165   170   175

Leu Leu Arg His Asp Ser Asp Val Ser Asn Pro Asn Pro Thr Ala Val
           180   185   190

Ala Ala Asp Phe Asp Asn Arg Gly Met Ile Ser Asn Glu Gln Gln Phe
           195   200   205

Asp Pro Leu Trp Lys Arg Arg Asn Val Cys Leu Gln Pro Leu Thr His
           210   215   220

Leu Lys Arg Arg Leu Ser Tyr Ser Ser Asp Leu Lys Arg Ala Glu Asn
225   230   235   240

Leu Leu Glu Gln Gly Glu Thr Gln Thr Val Pro Ala Gln Ile Leu Val
                     245   250   255

Gly His Lys Pro Arg Gln Lys Leu Ile Ser His Cys Tyr Ile Pro Gln
           260   265   270

Ser Pro Glu Pro Asp His Lys Glu Ala Leu Val Arg Ser Thr Leu Ser
           275   280   285

Phe Trp Ser Gln Lys Phe Gly Leu Glu Gly Leu Lys Asp Asn Gly
           290   295   300

Ser Pro Ile His Gly Arg Ile Ile Pro Lys Glu Ala Gln Gln Ser Gly
305   310   315   320

Ala Phe Ala Asp Val Ser Gly Ser His Ser Pro Gly Glu Pro Val Ser
           325   330   335

Pro Phe Ala Asn Val His Lys Asp Pro Asn Pro Ala His Gln Gln Val
           340   345   350

His Cys Gln Cys Lys Thr His Gly Val Gly Ser Pro Gly Ser Val Gln
           355   360   365

Asn Ser Arg Thr Pro Arg Ser Pro Leu Asp Cys Gly Ser Ser Lys Ala
           370   375   380

```
Gln Phe Leu Val Glu His Glu Thr Gln Asp Ser Lys Asp Ser Glu Ala
385                 390                 395                 400

Ala Ser His Ser Ala Leu Gln Ser Glu Leu Ser Ala Ala Arg Arg Ile
                405                 410                 415

Leu Ala Ala Lys Ala Leu Ala Asn Leu Asn Glu Val Glu Lys Glu Glu
                420                 425                 430

Leu Lys Arg Lys Val Glu Met Trp Gln Lys Leu Asn Ser Arg Asp Gly
        435                 440                 445

Ala Trp Glu Arg Ile Cys Gly Glu Arg Pro Phe Ile Leu Cys Ser Leu
    450                 455                 460

Met Trp Ser Trp Val Glu
465                 470
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<210> 154
<211> 24
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<400> 154
tacaatttcg gatggaagga ttat   24

<210> 155
<211> 23
<212> DNA
<213> Homo sapiens

<400> 155
gcatgacaat ggatagctac ttt   23

<210> 156
<211> 24
<212> DNA
<213> Homo sapiens

<400> 156
gagaaagcag tcttccagtt ctac   24

<210> 157
<211> 24
<212> DNA
<213> Homo sapiens

<400> 157
atgggagcta gagggtttaa tact   24

<210> 158
<211> 14
<212> PRT
<213> Homo sapiens

<400> 158

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Leu Thr Pro Leu Arg Asn Ile Ser Cys Cys Asp Pro Lys Ala
1               5                   10

<210>   159
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   159

Thr Leu Ser Phe Trp Ser Gln Lys Phe Gly Gly Leu Glu
1               5                   10

<210>   160
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   160

Val Gln Asn Ser Arg Thr Pro Arg Ser Pro Leu Asp Cys
1               5                   10

<210>   161
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   161

Pro Leu Asp Cys Gly Ser Ser Lys Ala Gln Phe Leu Val
1               5                   10

<210>   162
<211>   13
<212>   PRT
<213>   Homo sapiens

<400>   162

Pro Thr Val Tyr Asn Thr Lys Lys Ile Phe Lys His Thr
1               5                   10

<210>   163
<211>   23
<212>   PRT
<213>   Homo sapiens

<400>   163

Gln Glu Gly Lys Val Ile His Cys His Ala Gly Leu Gly Arg Thr Gly
1               5                   10                  15

Val Leu Ile Ala Tyr Leu Val
                20

<210>   164
<211>   14
<212>   PRT
<213>   Homo sapiens
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<400> 164

Gly Val Gln Pro Pro Asn Phe Ser Trp Val Leu Pro Gly Arg
1   5   10

<210> 165
<211> 13
<212> PRT
<213> Homo sapiens

<400> 165

His Leu Val Ser Leu Thr Glu Arg Gly Pro Pro His Ser
1   5   10

<210> 166
<211> 23
<212> PRT
<213> Homo sapiens

<400> 166

Gly Glu Ala Val Gly Val His Cys Ala Leu Gly Phe Gly Arg Thr Gly
1   5   10   15

Thr Met Leu Ala Cys Tyr Leu
            20

<210> 167
<211> 39
<212> DNA
<213> Homo sapiens

<400> 167
gcagcagcgg ccgcaatttc ggatggaagg attatggtg   39

<210> 168
<211> 33
<212> DNA
<213> Homo sapiens

<400> 168
gcagcagtcg acgaggccag gcttagggcc atc   33

<210> 169
<211> 38
<212> DNA
<213> Homo sapiens

<400> 169
gcagcagcgg ccgcatggag gctggcattt acttctac   38

<210> 170
<211> 35
<212> DNA
<213> Homo sapiens

104

<400> 170
gcagcagtcg accacccaag accacatcaa gctgc   35

<210> 171
<211> 39
<212> DNA
<213> Homo sapiens

<400> 171
gcagcagcgg ccgcctgttg gacctgggcg tgcggcacc   39

<210> 172
<211> 37
<212> DNA
<213> Homo sapiens

<400> 172
gcagcagtcg actttcgttc gctggtagaa ctggaag   37

<210> 173
<211> 38
<212> DNA
<213> Homo sapiens

<400> 173
gcagcagcgg ccgcatgggc gtgcagcccc ccaacttc   38

<210> 174
<211> 37
<212> DNA
<213> Homo sapiens

<400> 174
gcagcagtcg accaccaggt aacaggccag catggtg   37

<210> 175
<211> 806
<212> PRT
<213> Homo sapiens

<400> 175

Met Gln Val Gln Asp Ala Thr Arg Arg Pro Ser Ala Val Arg Phe Leu
1   5   10   15

Ser Ser Phe Leu Gln Gly Arg Arg His Ser Thr Ser Asp Pro Val Leu
            20   25   30

Arg Leu Gln Gln Ala Arg Arg Gly Ser Gly Leu Gly Ser Gly Ser Ala
        35   40   45

Thr Lys Leu Leu Ser Ser Ser Ser Leu Gln Val Met Val Ala Val Ser
    50   55   60

Ser Val Ser His Ala Glu Gly Asn Pro Thr Phe Pro Glu Arg Lys Arg
65   70   75   80

105

```
Asn Leu Glu Arg Pro Thr Pro Lys Tyr Thr Lys Val Gly Glu Arg Leu
                     85                  90                  95

Arg His Val Ile Pro Gly His Met Ala Cys Ser Met Ala Cys Gly Gly
                100                 105                 110

Arg Ala Cys Lys Tyr Glu Asn Pro Ala Arg Trp Ser Glu Gln Glu Gln
            115                 120                 125

Ala Ile Lys Gly Val Tyr Ser Ser Trp Val Thr Asp Asn Ile Leu Ala
            130                 135                 140

Met Ala Arg Pro Ser Ser Glu Leu Leu Glu Gln Lys Tyr His Ile Ile Asp
145                 150                 155                 160

Gln Phe Leu Ser His Gly Ile Lys Thr Ile Ile Asn Leu Gln Arg Pro
                165                 170                 175

Gly Glu His Ala Ser Cys Gly Asn Pro Leu Glu Gln Glu Ser Gly Phe
                180                 185                 190

Thr Tyr Leu Pro Glu Ala Phe Met Glu Ala Gly Ile Tyr Phe Tyr Asn
            195                 200                 205

Phe Gly Trp Lys Asp Tyr Gly Val Ala Ser Leu Thr Thr Ile Leu Asp
210                 215                 220

Met Val Lys Val Met Thr Phe Ala Leu Gln Glu Gly Lys Val Ala Ile
225                 230                 235                 240

His Cys His Ala Gly Leu Gly Arg Thr Gly Val Leu Ile Ala Cys Tyr
                245                 250                 255

Leu Val Phe Ala Thr Arg Met Thr Ala Asp Gln Ala Ile Ile Phe Val
            260                 265                 270

Arg Ala Lys Arg Pro Asn Ser Ile Gln Thr Arg Gly Gln Leu Leu Cys
            275                 280                 285

Val Arg Glu Phe Thr Gln Phe Leu Thr Pro Leu Arg Asn Ile Phe Ser
            290                 295                 300

Cys Cys Asp Pro Lys Ala His Ala Val Thr Leu Pro Gln Tyr Leu Ile
305                 310                 315                 320

Arg Gln Arg His Leu Leu His Gly Tyr Gln Ala Arg Leu Leu Lys His
                325                 330                 335

Val Pro Lys Ile Ile His Leu Val Cys Lys Leu Leu Leu Asp Leu Ala
            340                 345                 350

Glu Asn Arg Pro Val Met Met Lys Asp Val Ser Glu Gly Pro Gly Leu
            355                 360                 365

Ser Ala Glu Ile Glu Lys Thr Met Ser Glu Met Val Thr Met Gln Leu
    370                 375                 380

Asp Lys Glu Leu Leu Arg His Asp Ser Asp Val Ser Asn Pro Pro Asn
385                 390                 395                 400
```

106

```
Pro Thr Ala Val Ala Ala Asp Phe Asp Asn Arg Gly Met Ile Phe Ser
            405                 410                 415

Asn Glu Gln Gln Phe Asp Pro Leu Trp Lys Arg Arg Asn Val Glu Cys
            420                 425                 430

Leu Gln Pro Leu Thr His Leu Lys Arg Arg Leu Ser Tyr Ser Asp Ser
            435                 440                 445

Asp Leu Lys Arg Ala Glu Asn Leu Leu Glu Gln Gly Glu Thr Pro Gln
    450                 455                 460

Thr Val Pro Ala Gln Ile Leu Val Gly His Lys Pro Arg Gln Gln Lys
465                 470                 475                 480

Leu Ile Ser His Cys Tyr Ile Pro Gln Ser Pro Glu Pro Asp Leu His
                485                 490                 495

Lys Glu Ala Leu Val Arg Ser Thr Leu Ser Phe Trp Ser Gln Ser Lys
            500                 505                 510

Phe Gly Gly Leu Glu Gly Leu Lys Asp Asn Gly Ser Pro Ile Phe His
            515                 520                 525

Gly Arg Ile Ile Pro Lys Glu Ala Gln Gln Ser Gly Ala Phe Ser Ala
            530                 535                 540

Asp Val Ser Gly Ser His Ser Pro Gly Glu Pro Val Ser Pro Ser Phe
545                 550                 555                 560

Ala Asn Val His Lys Asp Pro Asn Pro Ala His Gln Gln Val Ser His
                565                 570                 575

Cys Gln Cys Lys Thr His Gly Val Gly Ser Pro Gly Ser Val Arg Gln
            580                 585                 590

Asn Ser Arg Thr Pro Arg Ser Pro Leu Asp Cys Gly Ser Ser Pro Lys
            595                 600                 605

Ala Gln Phe Leu Val Glu His Glu Thr Gln Asp Ser Lys Asp Leu Ser
            610                 615                 620

Glu Ala Ala Ser His Ser Ala Leu Gln Ser Glu Leu Ser Ala Glu Ala
625                 630                 635                 640

Arg Arg Ile Leu Ala Ala Lys Ala Leu Ala Asn Leu Asn Glu Ser Val
                645                 650                 655

Glu Lys Glu Glu Leu Lys Arg Lys Val Glu Met Trp Gln Lys Glu Leu
            660                 665                 670

Asn Ser Arg Asp Gly Ala Trp Glu Arg Ile Cys Gly Glu Arg Asp Pro
            675                 680                 685

Phe Ile Leu Cys Ser Leu Met Trp Ser Trp Val Glu Gln Leu Lys Glu
            690                 695                 700

Pro Val Ile Thr Lys Glu Asp Val Asp Met Leu Val Asp Arg Arg Ala
705                 710                 715                 720

Asp Ala Ala Glu Ala Leu Phe Leu Leu Glu Lys Gly Gln His Gln Thr
```

107

```
                   725                 730                    735
    Ile Leu Cys Val Leu His Cys Ile Val Asn Leu Gln Thr Ile Pro Val
                   740                 745                    750

    Asp Val Glu Glu Ala Phe Leu Ala His Ala Ile Lys Ala Phe Thr Lys
                   755                 760                    765

    Val Asn Phe Asp Ser Glu Asn Gly Pro Thr Val Tyr Asn Thr Leu Lys
        770                 775                    780

    Lys Ile Phe Lys His Thr Leu Glu Glu Lys Arg Lys Met Thr Lys Asp
    785                 790                    795                    800

    Gly Pro Lys Pro Gly Leu
                   805


    <210>  176
    <211>  747
    <212>  PRT
    <213>  Homo sapiens

    <400>  176

    Met Val Ala Val Ser Ser Val Ser His Ala Glu Gly Asn Pro Thr Phe
    1                   5                 10                    15

    Pro Glu Arg Lys Arg Asn Leu Glu Arg Pro Thr Pro Lys Tyr Thr Lys
                   20                 25                    30

    Val Gly Glu Arg Leu Arg His Val Ile Pro Gly His Met Ala Cys Ser
            35                 40                    45

    Met Ala Cys Gly Gly Arg Ala Cys Lys Tyr Glu Asn Pro Ala Arg Trp
        50                 55                    60

    Ser Glu Gln Glu Gln Ala Ile Lys Gly Val Tyr Ser Ser Trp Val Thr
    65                 70                 75                    80

    Asp Asn Ile Leu Ala Met Ala Arg Pro Ser Ser Glu Leu Leu Glu Lys
                   85                 90                    95

    Tyr His Ile Ile Asp Gln Phe Leu Ser His Ile Lys Thr Ile Ile
                   100                105                    110

    Asn Leu Gln Arg Pro Gly Glu His Ala Ser Cys Gly Asn Pro Leu Glu
        115                120                    125

    Gln Glu Ser Gly Phe Thr Tyr Leu Pro Glu Ala Phe Met Glu Ala Gly
        130                135                    140

    Ile Tyr Phe Tyr Asn Phe Gly Trp Lys Asp Tyr Gly Val Ala Ser Leu
    145                150                155                    160

    Thr Thr Ile Leu Asp Met Val Lys Val Met Thr Phe Ala Leu Gln Glu
                   165                170                    175

    Gly Lys Val Ala Ile His Cys His Ala Gly Leu Gly Arg Thr Gly Val
                   180                185                    190

    Leu Ile Ala Cys Tyr Leu Val Phe Ala Thr Arg Met Thr Ala Asp Gln
```

Ala Ile Ile Phe Val Arg Ala Lys Arg Pro Asn Ser Ile Gln Thr Arg
    210   215   220

Gly Gln Leu Leu Cys Val Arg Glu Phe Thr Gln Phe Leu Thr Pro Leu
225   230   235   240

Arg Asn Ile Phe Ser Cys Cys Asp Pro Lys Ala His Ala Val Thr Leu
                245   250   255

Pro Gln Tyr Leu Ile Arg Gln Arg His Leu Leu His Gly Tyr Glu Ala
            260   265   270

Arg Leu Leu Lys His Val Pro Lys Ile Ile His Leu Val Cys Lys Leu
        275   280   285

Leu Leu Asp Leu Ala Glu Asn Arg Pro Val Met Met Lys Asp Val Ser
    290   295   300

Glu Gly Pro Gly Leu Ser Ala Glu Ile Glu Lys Thr Met Ser Glu Met
305   310   315   320

Val Thr Met Gln Leu Asp Lys Glu Leu Leu Arg His Asp Ser Asp Val
                325   330   335

Ser Asn Pro Pro Asn Pro Thr Ala Val Ala Ala Asp Phe Asp Asn Arg
                340   345   350

Gly Met Ile Phe Ser Asn Glu Gln Gln Phe Asp Pro Leu Trp Lys Arg
        355   360   365

Arg Asn Val Glu Cys Leu Gln Pro Leu Thr His Leu Lys Arg Arg Leu
    370   375   380

Ser Tyr Ser Asp Ser Asp Leu Lys Arg Ala Glu Asn Leu Leu Glu Gln
385   390   395   400

Gly Glu Thr Pro Gln Thr Val Pro Ala Gln Ile Leu Val Gly His Lys
                405   410   415

Pro Arg Gln Gln Lys Leu Ile Ser His Cys Tyr Ile Pro Gln Ser Pro
            420   425   430

Glu Pro Asp Leu His Lys Glu Ala Leu Val Arg Ser Thr Leu Ser Phe
        435   440   445

Trp Ser Gln Ser Lys Phe Gly Gly Leu Glu Gly Leu Lys Asp Asn Gly
    450   455   460

Ser Pro Ile Phe His Gly Arg Ile Ile Pro Lys Glu Ala Gln Gln Ser
465   470   475   480

Gly Ala Phe Ser Ala Asp Val Ser Gly Ser His Ser Pro Gly Glu Pro
                485   490   495

Val Ser Pro Ser Phe Ala Asn Val His Lys Asp Pro Asn Pro Ala His
            500   505   510

Gln Gln Val Ser His Cys Gln Cys Lys Thr His Gly Val Gly Ser Pro
        515   520   525

Gly Ser Val Arg Gln Asn Ser Arg Thr Pro Arg Ser Pro Leu Asp Cys
    530   535   540

Gly Ser Ser Pro Lys Ala Gln Phe Leu Val Glu His Glu Thr Gln Asp
545   550   555   560

Ser Lys Asp Leu Ser Glu Ala Ala Ser His Ser Ala Leu Gln Ser Glu
                565   570   575

Leu Ser Ala Glu Ala Arg Arg Ile Leu Ala Ala Lys Ala Leu Ala Asn
                580   585   590

Leu Asn Glu Ser Val Glu Lys Glu Glu Leu Lys Arg Lys Val Glu Met
            595   600   605

Trp Gln Lys Glu Leu Asn Ser Arg Asp Gly Ala Trp Glu Arg Ile Cys
    610   615   620

Gly Glu Arg Asp Pro Phe Ile Leu Cys Ser Leu Met Trp Ser Trp Val
625   630   635   640

Glu Gln Leu Lys Glu Pro Val Ile Thr Lys Glu Asp Val Asp Met Leu
                645   650   655

Val Asp Arg Arg Ala Asp Ala Ala Glu Ala Leu Phe Leu Leu Glu Lys
                660   665   670

Gly Gln His Gln Thr Ile Leu Cys Val Leu His Cys Ile Val Asn Leu
            675   680   685

Gln Thr Ile Pro Val Asp Val Glu Glu Ala Phe Leu Ala His Ala Ile
    690   695   700

Lys Ala Phe Thr Lys Val Asn Phe Asp Ser Glu Asn Gly Pro Thr Val
705   710   715   720

Tyr Asn Thr Leu Lys Lys Ile Phe Lys His Thr Leu Glu Glu Lys Arg
                725   730   735

Lys Met Thr Lys Asp Gly Pro Lys Pro Gly Leu
            740   745

<210> 177
<211> 699
<212> PRT
<213> Homo sapiens

<400> 177

Met Ala Cys Gly Gly Arg Ala Cys Lys Tyr Glu Asn Pro Ala Arg Trp
1   5   10   15

Ser Glu Gln Glu Gln Ala Ile Lys Gly Val Tyr Ser Ser Trp Val Thr
                20   25   30

Asp Asn Ile Leu Ala Met Ala Arg Pro Ser Ser Glu Leu Leu Glu Lys
        35   40   45

Tyr His Ile Ile Asp Gln Phe Leu Ser His Gly Ile Lys Thr Ile Ile
    50   55   60

110

```
Asn Leu Gln Arg Pro Gly Glu His Ala Ser Cys Gly Asn Pro Leu Glu
65                  70                  75                      80

Gln Glu Ser Gly Phe Thr Tyr Leu Pro Glu Ala Phe Met Glu Ala Gly
                85                  90                  95

Ile Tyr Phe Tyr Asn Phe Gly Trp Lys Asp Tyr Gly Val Ala Ser Leu
            100                 105                 110

Thr Thr Ile Leu Asp Met Val Lys Val Met Thr Phe Ala Leu Gln Glu
        115                 120                 125

Gly Lys Val Ala Ile His Cys His Ala Gly Leu Gly Arg Thr Gly Val
    130                 135                 140

Leu Ile Ala Cys Tyr Leu Val Phe Ala Thr Arg Met Thr Ala Asp Gln
145                 150                 155                     160

Ala Ile Ile Phe Val Arg Ala Lys Arg Pro Asn Ser Ile Gln Thr Arg
                165                 170                 175

Gly Gln Leu Leu Cys Val Arg Glu Thr Gln Phe Leu Thr Pro Leu
        180                 185                 190

Arg Asn Ile Phe Ser Cys Cys Asp Pro Lys Ala His Ala Val Thr Leu
        195                 200                 205

Pro Gln Tyr Leu Ile Arg Gln Arg His Leu Leu His Gly Tyr Glu Ala
    210                 215                 220

Arg Leu Leu Lys His Val Pro Lys Ile Ile His Leu Val Cys Lys Leu
225                 230                 235                     240

Leu Leu Asp Leu Ala Glu Asn Arg Pro Val Met Met Lys Asp Val Ser
            245                 250                 255

Glu Gly Pro Gly Leu Ser Ala Glu Ile Glu Lys Thr Met Ser Glu Met
        260                 265                 270

Val Thr Met Gln Leu Asp Lys Glu Leu Leu Arg His Asp Ser Asp Val
        275                 280                 285

Ser Asn Pro Pro Asn Pro Thr Ala Val Ala Ala Asp Phe Asp Asn Arg
    290                 295                 300

Gly Met Ile Phe Ser Asn Glu Gln Gln Phe Asp Pro Leu Trp Lys Arg
305                 310                 315                     320

Arg Asn Val Glu Cys Leu Gln Pro Leu Thr His Leu Lys Arg Arg Leu
            325                 330                 335

Ser Tyr Ser Asp Ser Asp Leu Lys Arg Ala Glu Asn Leu Leu Glu Gln
            340                 345                 350

Gly Glu Thr Pro Gln Thr Val Pro Ala Gln Ile Leu Val Leu Gly His Lys
        355                 360                 365

Pro Arg Gln Gln Lys Leu Ile Ser His Cys Tyr Ile Pro Gln Ser Pro
    370                 375                 380
```

```
Glu Pro Asp Leu His Lys Glu Ala Leu Val Arg Ser Thr Leu Ser Phe
385                 390                 395                 400

Trp Ser Gln Ser Lys Phe Gly Gly Leu Glu Gly Leu Lys Asp Asn Gly
            405                 410                 415

Ser Pro Ile Phe His Gly Arg Ile Ile Pro Lys Glu Ala Gln Gln Ser
            420                 425                 430

Gly Ala Phe Ser Ala Asp Val Ser Gly Ser His Ser Pro Gly Glu Pro
            435                 440                 445

Val Ser Pro Ser Phe Ala Asn Val His Lys Asp Pro Asn Pro Ala His
    450                 455                 460

Gln Gln Val Ser His Cys Gln Cys Lys Thr His Gly Val Gly Ser Pro
465                 470                 475                 480

Gly Ser Val Arg Gln Asn Ser Arg Thr Pro Arg Ser Pro Leu Asp Cys
            485                 490                 495

Gly Ser Ser Pro Lys Ala Gln Phe Leu Val Glu His Glu Thr Gln Asp
            500                 505                 510

Ser Lys Asp Leu Ser Glu Ala Ala Ser His Ser Ala Leu Gln Ser Glu
        515                 520                 525

Leu Ser Ala Glu Ala Arg Arg Ile Leu Ala Ala Lys Ala Leu Ala Asn
    530                 535                 540

Leu Asn Glu Ser Val Glu Lys Glu Glu Leu Lys Arg Lys Val Glu Met
545                 550                 555                 560

Trp Gln Lys Glu Leu Asn Ser Arg Asp Gly Ala Trp Glu Arg Ile Cys
            565                 570                 575

Gly Glu Arg Asp Pro Phe Ile Leu Cys Ser Leu Met Trp Ser Trp Val
            580                 585                 590

Glu Gln Leu Lys Glu Pro Val Ile Thr Lys Glu Asp Val Asp Met Leu
            595                 600                 605

Val Asp Arg Arg Ala Asp Ala Ala Glu Ala Leu Phe Leu Leu Glu Lys
    610                 615                 620

Gly Gln His Gln Thr Ile Leu Cys Val Leu His Cys Ile Val Asn Leu
625                 630                 635                 640

Gln Thr Ile Pro Val Asp Val Glu Glu Ala Phe Leu Ala His Ala Ile
            645                 650                 655

Lys Ala Phe Thr Lys Val Asn Phe Asp Ser Glu Asn Gly Pro Thr Val
            660                 665                 670

Tyr Asn Thr Leu Lys Lys Ile Phe Lys His Thr Leu Glu Glu Lys Arg
            675                 680                 685

Lys Met Thr Lys Asp Gly Pro Lys Pro Gly Leu
    690                 695

<210>  178
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<211> 662
<212> PRT
<213> Homo sapiens

<400> 178

Met Ala Arg Pro Ser Ser Glu Leu Leu Glu Lys Tyr His Ile Ile Asp
1   5   10   15

Gln Phe Leu Ser His Gly Ile Lys Thr Ile Ile Asn Leu Gln Arg Pro
                20   25   30

Gly Glu His Ala Ser Cys Gly Asn Pro Leu Glu Gln Glu Ser Gly Phe
            35   40   45

Thr Tyr Leu Pro Glu Ala Phe Met Glu Ala Gly Ile Tyr Phe Tyr Asn
        50   55   60

Phe Gly Trp Lys Asp Tyr Gly Val Ala Ser Leu Thr Thr Ile Leu Asp
65   70   75   80

Met Val Lys Val Met Thr Phe Ala Leu Gln Glu Gly Lys Val Ala Ile
                85   90   95

His Cys His Ala Gly Leu Gly Arg Thr Gly Val Leu Ile Ala Cys Tyr
            100   105   110

Leu Val Phe Ala Thr Arg Met Thr Ala Asp Gln Ala Ile Ile Phe Val
        115   120   125

Arg Ala Lys Arg Pro Asn Ser Ile Gln Thr Arg Gly Gln Leu Leu Cys
    130   135   140

Val Arg Glu Phe Thr Gln Phe Leu Thr Pro Leu Arg Asn Ile Phe Ser
145   150   155   160

Cys Cys Asp Pro Lys Ala His Ala Val Thr Leu Pro Gln Tyr Leu Ile
                165   170   175

Arg Gln Arg His Leu Leu His Gly Tyr Glu Ala Arg Leu Leu Lys His
            180   185   190

Val Pro Lys Ile Ile His Leu Val Cys Lys Leu Leu Leu Asp Leu Ala
        195   200   205

Glu Asn Arg Pro Val Met Met Lys Asp Val Ser Glu Gly Pro Gly Leu
    210   215   220

Ser Ala Glu Ile Glu Lys Thr Met Ser Glu Met Val Thr Met Gln Leu
225   230   235   240

Asp Lys Glu Leu Leu Arg His Asp Ser Asp Val Ser Asn Pro Pro Asn
            245   250   255

Pro Thr Ala Val Ala Ala Asp Phe Asp Asn Arg Gly Met Ile Phe Ser
        260   265   270

Asn Glu Gln Gln Phe Asp Pro Leu Trp Lys Arg Arg Asn Val Glu Cys
    275   280   285

Leu Gln Pro Leu Thr His Leu Lys Arg Arg Leu Ser Tyr Ser Asp Ser

113

Asp Leu Lys Arg Ala Glu Asn Leu Leu Glu Gln Gly Glu Thr Pro Gln
305   310   315   320

Thr Val Pro Ala Gln Ile Leu Val Gly His Lys Pro Arg Gln Gln Lys
                      325   330   335

Leu Ile Ser His Cys Tyr Ile Pro Gln Ser Pro Glu Pro Asp Leu His
                      340   345   350

Lys Glu Ala Leu Val Arg Ser Thr Leu Ser Phe Trp Ser Gln Ser Lys
          355   360   365

Phe Gly Gly Leu Glu Gly Leu Lys Asp Asn Gly Ser Pro Ile Phe His
          370   375   380

Gly Arg Ile Ile Pro Lys Glu Ala Gln Gln Ser Gly Ala Phe Ser Ala
385   390   395   400

Asp Val Ser Gly Ser His Ser Pro Gly Glu Pro Val Ser Pro Ser Phe
                      405   410   415

Ala Asn Val His Lys Asp Pro Asn Pro Ala His Gln Gln Val Ser His
          420   425   430

Cys Gln Cys Lys Thr His Gly Val Gly Ser Pro Gly Ser Val Arg Gln
          435   440   445

Asn Ser Arg Thr Pro Arg Ser Pro Leu Asp Cys Gly Ser Ser Pro Lys
          450   455   460

Ala Gln Phe Leu Val Glu His Glu Thr Gln Asp Ser Lys Asp Leu Ser
465   470   475   480

Glu Ala Ala Ser His Ser Ala Leu Gln Ser Glu Leu Ser Ala Glu Ala
                      485   490   495

Arg Arg Ile Leu Ala Ala Lys Ala Leu Ala Asn Leu Asn Glu Ser Val
          500   505   510

Glu Lys Glu Glu Leu Lys Arg Lys Val Glu Met Trp Gln Lys Glu Leu
          515   520   525

Asn Ser Arg Asp Gly Ala Trp Glu Arg Ile Cys Gly Glu Arg Asp Pro
          530   535   540

Phe Ile Leu Cys Ser Leu Met Trp Ser Trp Val Glu Gln Leu Lys Glu
545   550   555   560

Pro Val Ile Thr Lys Glu Asp Val Asp Met Leu Val Asp Arg Arg Ala
                      565   570   575

Asp Ala Ala Glu Ala Leu Phe Leu Leu Glu Lys Gly Gln His Gln Thr
          580   585   590

Ile Leu Cys Val Leu His Cys Ile Val Asn Leu Gln Thr Ile Pro Val
          595   600   605

Asp Val Glu Glu Ala Phe Leu Ala His Ala Ile Lys Ala Phe Thr Lys
          610   615   620

```
Val Asn Phe Asp Ser Glu Asn Gly Pro Thr Val Tyr Asn Thr Leu Lys
625                     630                 635                 640

Lys Ile Phe Lys His Thr Leu Glu Glu Lys Arg Lys Met Thr Lys Asp
                645                 650                 655

Gly Pro Lys Pro Gly Leu
                660


<210>  179
<211>  25
<212>  DNA
<213>  Artificial

<220>
<223>  Synthesized Oligonucleotide.

<400>  179
ggauaucacu acugcauugc cugga                                        25


<210>  180
<211>  25
<212>  DNA
<213>  Artificial

<220>
<223>  Synthesized Oligonucleotide.

<400>  180
uacagcagau cugugcaggc caggu                                        25


<210>  181
<211>  25
<212>  DNA
<213>  Artificial

<220>
<223>  Synthesized Oligonucleotide.

<400>  181
ugaucacaca guagcggaag augcu                                        25


<210>  182
<211>  25
<212>  DNA
<213>  Artificial

<220>
<223>  Synthesized Oligonucleotide.

<400>  182
aggaguagca gaaugguuag ccuuc                                        25


<210>  183
<211>  25
<212>  DNA
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<400> 183
ugaaagcagg cgagauucga uccga   25

<210> 184
<211> 20
<212> DNA
<213> Homo sapiens

<400> 184
actaccgcct cacacgcttc   20

<210> 185
<211> 20
<212> DNA
<213> Homo sapiens

<400> 185
cttgactcca gcagggcttc   20

<210> 186
<211> 26
<212> DNA
<213> Homo sapiens

<400> 186
atcaagtgtg acccagactg cctccg   26

<210> 187
<211> 28
<212> DNA
<213> Homo sapiens

<400> 187
catatgggat ccatggccca tgagattg   28

<210> 188
<211> 30
<212> DNA
<213> Homo sapiens

<400> 188
ggtaccctcg agtcaggaga cctcaatgat   30

<210> 189
<211> 30
<212> DNA
<213> Homo sapiens

<400> 189
ggtaccctcg agtcaagtct ggttcttaat   30

<210> 190
<211> 664
<212> PRT
<213> Homo sapiens

<400> 190

Met Ala His Glu Ile Gly Thr Gln Ile Val Thr Glu Arg Leu Val Ala
1   5   10   15

Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp Ser Arg Pro
                20   25   30

Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile Asn Ile Asn
        35   40   45

Cys Ser Lys Leu Met Lys Arg Arg Leu Gln Gln Asp Lys Val Leu Ile
        50   55   60

Thr Glu Leu Ile Gln His Ser Ala Lys His Lys Val Asp Ile Asp Cys
65   70   75   80

Ser Gln Lys Val Val Val Tyr Asp Gln Ser Ser Gln Asp Val Ala Ser
                85   90   95

Leu Ser Ser Asp Cys Phe Leu Thr Val Leu Leu Gly Lys Leu Glu Lys
            100   105   110

Ser Phe Asn Ser Val His Leu Leu Ala Gly Gly Phe Ala Glu Phe Ser
        115   120   125

Arg Cys Phe Pro Gly Leu Cys Glu Gly Lys Ser Thr Leu Val Pro Thr
        130   135   140

Cys Ile Ser Gln Pro Cys Leu Pro Val Ala Asn Ile Gly Pro Thr Arg
145   150   155   160

Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp Val Leu Asn Lys
                165   170   175

Glu Leu Met Gln Gln Asn Gly Ile Gly Tyr Val Leu Asn Ala Ser Asn
                180   185   190

Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His Phe Leu Arg Val
                195   200   205

Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro Trp Leu Asp Lys
        210   215   220

Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn Gly Cys Val Leu
225   230   235   240

Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile Ala
                245   250   255

Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu Ala Tyr Arg Phe
                260   265   270

Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Ser Phe Asn Phe Leu Gly

```
Gln Leu Leu Asp Tyr Glu Lys Lys Ile Lys Asn Gln Ala Gly Ala Ser
    290                    295                    300

Gly Pro Lys Ser Lys Leu Lys Leu Leu His Leu Glu Lys Pro Asn Glu
305                    310                    315                    320

Pro Val Pro Ala Val Ser Glu Gly Gly Gln Lys Ser Glu Thr Pro Leu
                   325                    330                    335

Ser Pro Pro Cys Ala Asp Ser Ala Thr Ser Glu Ala Ala Gly Gln Arg
                   340                    345                    350

Pro Val His Pro Ala Ser Val Pro Ser Val Pro Ser Val Gln Pro Ser
                   355                    360                    365

Leu Leu Glu Asp Ser Pro Leu Val Gln Ala Leu Ser Gly Leu His Leu
    370                    375                    380

Ser Ala Asp Arg Leu Glu Asp Ser Asn Lys Leu Lys Arg Ser Phe Ser
385                    390                    395                    400

Leu Asp Ile Lys Ser Val Ser Tyr Ser Ala Ser Met Ala Ala Ser Leu
                   405                    410                    415

His Gly Phe Ser Ser Ser Glu Asp Ala Leu Glu Tyr Tyr Lys Pro Ser
                   420                    425                    430

Thr Thr Leu Asp Gly Thr Asn Lys Leu Cys Gln Phe Ser Pro Val Gln
                   435                    440                    445

Glu Leu Ser Glu Gln Thr Pro Glu Thr Ser Pro Asp Lys Glu Glu Ala
    450                    455                    460

Ser Ile Pro Lys Lys Leu Gln Thr Ala Arg Pro Ser Asp Ser Gln Ser
465                    470                    475                    480

Lys Arg Leu His Ser Val Arg Thr Ser Ser Ser Gly Thr Ala Gln Arg
                   485                    490                    495

Ser Leu Leu Ser Pro Leu His Arg Ser Gly Ser Val Glu Asp Asn Tyr
                   500                    505                    510

His Thr Ser Phe Leu Phe Gly Leu Ser Thr Ser Gln Gln His Leu Thr
                   515                    520                    525

Lys Ser Ala Gly Leu Gly Leu Lys Gly Trp His Ser Asp Ile Leu Ala
    530                    535                    540

Pro Gln Thr Ser Thr Pro Ser Leu Thr Ser Ser Trp Tyr Phe Ala Thr
545                    550                    555                    560

Glu Ser Ser His Phe Tyr Ser Ala Ser Ala Ile Tyr Gly Gly Ser Ala
                   565                    570                    575

Ser Tyr Ser Ala Tyr Ser Arg Ser Gln Leu Pro Thr Cys Gly Asp Gln
                   580                    585                    590

Val Tyr Ser Val Arg Arg Arg Gln Lys Pro Ser Asp Arg Ala Asp Ser
                   595                    600                    605
```

```
Arg Arg Ser Trp His Glu Glu Ser Pro Phe Glu Lys Gln Phe Lys Arg
    610                 615                 620

Arg Ser Cys Gln Met Glu Phe Gly Glu Ser Ile Met Ser Glu Asn Arg
625                 630                 635                 640

Ser Arg Glu Glu Leu Gly Lys Val Gly Ser Gln Ser Ser Phe Ser Gly
            645                 650                 655

Ser Met Glu Ile Ile Glu Val Ser
            660


<210>   191
<211>   302
<212>   PRT
<213>   Homo sapiens


<400>   191

Met Ala His Glu Ile Val Gly Thr Gln Ile Val Thr Glu Arg Leu Val
1               5                   10                  15

Ala Leu Leu Glu Ser Gly Thr Glu Lys Val Leu Leu Ile Asp Ser Arg
            20                  25                  30

Pro Phe Val Glu Tyr Asn Thr Ser His Ile Leu Glu Ala Ile Asn Ile
            35                  40                  45

Asn Cys Ser Lys Leu Met Lys Arg Arg Leu Gln Gln Asp Lys Val Leu
    50                  55                  60

Ile Thr Glu Leu Ile Gln His Ser Ala Lys His Lys Val Asp Ile Asp
65                  70                  75                  80

Cys Ser Gln Lys Val Val Val Tyr Asp Gln Ser Ser Gln Asp Val Ala
            85                  90                  95

Ser Leu Ser Ser Asp Cys Phe Leu Thr Val Leu Leu Gly Lys Leu Glu
            100                 105                 110

Lys Ser Phe Asn Ser Val His Leu Leu Ala Gly Gly Phe Ala Glu Phe
    115                 120                 125

Ser Arg Cys Phe Pro Gly Leu Cys Glu Gly Lys Ser Thr Leu Val Pro
    130                 135                 140

Thr Cys Ile Ser Gln Pro Cys Leu Pro Val Ala Asn Ile Gly Pro Thr
145                 150                 155                 160

Arg Ile Leu Pro Asn Leu Tyr Leu Gly Cys Gln Arg Asp Val Leu Asn
                165                 170                 175

Lys Glu Leu Met Gln Gln Asn Gly Ile Gly Tyr Val Leu Asn Ala Ser
            180                 185                 190

Asn Thr Cys Pro Lys Pro Asp Phe Ile Pro Glu Ser His Phe Leu Arg
    195                 200                 205

Val Pro Val Asn Asp Ser Phe Cys Glu Lys Ile Leu Pro Trp Leu Asp
    210                 215                 220
```

119

```
Lys Ser Val Asp Phe Ile Glu Lys Ala Lys Ala Ser Asn Gly Cys Val
225                 230                 235                 240

Leu Val His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile
                245                 250                 255

Ala Tyr Ile Met Lys Arg Met Asp Met Ser Leu Asp Glu Ala Tyr Arg
                260                 265                 270

Phe Val Lys Glu Lys Arg Pro Thr Ile Ser Pro Ser Phe Asn Phe Leu
            275                 280                 285

Gly Gln Leu Leu Asp Tyr Glu Lys Lys Ile Lys Asn Gln Thr
    290                 295                 300
```

```
<210>   192
<211>   20
<212>   PRT
<213>   Homo sapiens

<400>   192
```

```
Lys Asn Gln Thr Gly Ala Ser Gly Pro Lys Ser Lys Lys Leu Lys Leu
1               5                   10                  15

Leu His Leu Glu
            20
```

```
<210>   193
<211>   19
<212>   PRT
<213>   artificial

<220>
<223>   Synthesized Oligonucleotide.

<400>   193
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Cys Lys Lys Leu Gln Thr Ala Arg Pro Ser Asp Ser Gln Ser Lys Arg
1               5                   10                  15

Leu His Ser
```

```
<210>   194
<211>   21
<212>   DNA
<213>   Homo sapiens

<400>   194
ctgcgtgttg cactgcatag t                                          21
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```
<210>   195
<211>   19
<212>   DNA
<213>   Homo sapiens

<400>   195
tgggcaagga aagcttcct                                             19
```

120

```
<210>  196
<211>  26
<212>  DNA
<213>  Homo sapiens

<400>  196
aacctgcaga caattcccgt ggatgt                                    26


<210>  197
<211>  21
<212>  DNA
<213>  Homo sapiens

<400>  197
gagatgccat tgctgaaatc c                                         21


<210>  198
<211>  23
<212>  DNA
<213>  Homo sapiens

<400>  198
gactgctttc tcctgctcat agg                                       23


<210>  199
<211>  23
<212>  DNA
<213>  Homo sapiens

<400>  199
cgactacgac ccggctccat cga                                       23


<210>  200
<211>  23
<212>  DNA
<213>  Homo sapiens

<400>  200
aggagcagat ggtagacgtg ttc                                       23


<210>  201
<211>  20
<212>  DNA
<213>  Homo sapiens

<400>  201
ggctcagggt ctggatcatg                                           20


<210>  202
<211>  25
<212>  DNA
<213>  Homo sapiens
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<400> 202
tgctgtgtat gcactccgga tgcac   25

<210> 203
<211> 25
<212> DNA
<213> Homo sapiens

<400> 203
cacacaccaa atgtgtaaca gttca   25

<210> 204
<211> 27
<212> DNA
<213> Homo sapiens

<400> 204
gctactgctt tcctttctta aacatgt   27

<210> 205
<211> 25
<212> DNA
<213> Homo sapiens

<400> 205
cacttccaga gtgtggtcat gccca   25

<210> 206
<211> 321
<212> PRT
<213> Homo sapiens

<400> 206

Met Glu Met Glu Lys Glu Phe Glu Gln Ile Asp Lys Ser Gly Ser Trp
1   5   10   15

Ala Ala Ile Tyr Gln Asp Ile Arg His Glu Ala Ser Asp Phe Pro Cys
                20   25   30

Arg Val Ala Lys Leu Pro Lys Asn Lys Asn Arg Asn Arg Tyr Arg Asp
            35   40   45

Val Ser Pro Phe Asp His Ser Arg Ile Lys Leu His Gln Glu Asp Asn
        50   55   60

Asp Tyr Ile Asn Ala Ser Leu Ile Lys Met Glu Glu Ala Gln Arg Ser
65   70   75   80

Tyr Ile Leu Thr Gln Gly Pro Leu Pro Asn Thr Cys Gly His Phe Trp
                85   90   95

Glu Met Val Trp Glu Gln Lys Ser Arg Gly Val Val Met Leu Asn Arg
            100   105   110

Val Met Glu Lys Gly Ser Leu Lys Cys Ala Gln Tyr Trp Pro Gln Lys
        115   120   125

122

```
Glu Glu Lys Glu Met Ile Phe Glu Asp Thr Asn Leu Lys Leu Thr Leu
    130                 135                 140

Ile Ser Glu Asp Ile Lys Ser Tyr Tyr Thr Val Arg Gln Leu Glu Leu
145                 150                 155                 160

Glu Asn Leu Thr Thr Gln Glu Thr Arg Glu Ile Leu His Phe His Tyr
                165                 170                 175

Thr Thr Trp Pro Asp Phe Gly Val Pro Glu Ser Pro Ala Ser Phe Leu
            180                 185                 190

Asn Phe Leu Phe Lys Val Arg Glu Ser Gly Ser Leu Ser Pro Glu His
        195                 200                 205

Gly Pro Val Val Val His Ser Ser Ala Gly Ile Gly Arg Ser Gly Thr
    210                 215                 220

Phe Cys Leu Ala Asp Thr Cys Leu Leu Leu Met Asp Lys Arg Lys Asp
225                 230                 235                 240

Pro Ser Ser Val Asp Ile Lys Lys Val Leu Leu Glu Met Arg Lys Phe
                245                 250                 255

Arg Met Gly Leu Ile Gln Thr Ala Asp Gln Leu Arg Phe Ser Tyr Leu
            260                 265                 270

Ala Val Ile Glu Gly Ala Lys Phe Ile Met Gly Asp Ser Ser Val Gln
        275                 280                 285

Asp Gln Trp Lys Glu Leu Ser His Glu Asp Leu Glu Pro Pro Pro Gly
    290                 295                 300

His Ile Pro Pro Pro Arg Pro Pro Lys Arg Ile Leu Glu Pro His
305                 310                 315                 320

Asn


<210>   207
<211>   184
<212>   PRT
<213>   Homo sapiens

<400>   207

Ser Gly Ser Phe Glu Leu Ser Val Gln Asp Leu Asn Asp Leu Leu Ser
1               5                   10                  15

Asp Gly Ser Gly Cys Tyr Ser Leu Pro Ser Gln Pro Cys Asn Glu Val
            20                  25                  30

Thr Pro Arg Ile Tyr Val Gly Asn Ala Ser Val Ala Gln Asp Ile Pro
        35                  40                  45

Lys Leu Gln Lys Leu Gly Ile Thr His Val Leu Asn Ala Ala Glu Gly
    50                  55                  60

Arg Ser Phe Met His Val Asn Thr Asn Ala Asn Phe Tyr Lys Asp Ser
65                  70                  75                  80
```

```
Gly Ile Thr Tyr Leu Gly Ile Lys Ala Asn Asp Thr Gln Glu Phe Asn
                85                  90                  95

Leu Ser Ala Tyr Phe Glu Arg Ala Ala Asp Phe Ile Asp Gln Ala Leu
               100                 105                 110

Ala Gln Lys Asn Gly Arg Val Leu Val His Cys Arg Glu Gly Tyr Ser
            115                 120                 125

Arg Ser Pro Thr Leu Val Ile Ala Tyr Leu Met Met Arg Gln Lys Met
         130                 135                 140

Asp Val Lys Ser Ala Leu Ser Ile Val Arg Gln Asn Arg Glu Ile Gly
145                 150                 155                 160

Pro Asn Asp Gly Phe Leu Ala Gln Leu Cys Gln Leu Asn Asp Arg Leu
               165                 170                 175

Ala Lys Glu Gly Lys Leu Lys Pro
               180
```

```
Ala Ser Phe Pro Val Glu Ile Leu Pro Phe Leu Tyr Leu Gly Cys Ala
1               5                   10                  15

Lys Asp Ser Thr Asn Leu Asp Val Leu Glu Glu Phe Gly Ile Lys Tyr
            20                  25                  30

Ile Leu Asn Val Thr Pro Asn Leu Pro Asn Leu Phe Glu Asn Ala Gly
            35                  40                  45

Glu Phe Lys Tyr Lys Gln Ile Pro Ile Ser Asp His Trp Ser Gln Asn
         50                  55                  60

Leu Ser Gln Phe Phe Pro Glu Ala Ile Ser Phe Ile Asp Glu Ala Arg
65                  70                  75                  80

Gly Lys Asn Cys Gly Val Leu Val His Ser Leu Ala Gly Ile Ser Arg
               85                  90                  95

Ser Val Thr Val Thr Val Ala Tyr Leu Met Gln Lys Leu Asn Leu Ser
            100                 105                 110

Met Asn Asp Ala Tyr Asp Ile Val Lys Met Lys Lys Ser Asn Ile Ser
            115                 120                 125

Pro Asn Phe Asn Phe Met Gly Gln Leu Leu Asp Phe Glu Arg Thr Leu
         130                 135                 140
```